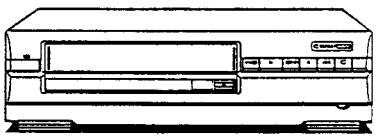
S/M Code No.0112 DATE OF ISSUE 11/1992 - I

aiwa

HV-E212
HV-E275
HV-E1010

SERVICE MANUAL



VIDEO CASSETTE PLAYER

- BASIC VIDEO MECHANISM : TN – 5900
- TYPE. SH, SE (E212) DKKE (E275) DH, DHKD, SE (E1010)

AIWA CO.,LTD.

Tokyo Japan

Printed in Japan

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SPECIFICATIONS

Playback system
Video: rotary 2 heads helical scan system
Audio: fixed head
Video signal
PAL/MESECAM color signal,
625 lines, 50 fields
Playback time
4 hours max. with E-240 tape, standard speed
Usable cassette
VHS video cassette
Tape width
12.65 mm
Tape speed
Standard speed, 23.39 mm/sec.

HV-E1010DH
RF output
UHF channel between 30 and 39,
K or I PAL output

HV-E212SH
RF output
VHF channel 3 or 4,
B PAL/B SECAM output

HV-E212SE/E1010SE
RF output
UHF channel between 32 and 40
G PAL/G SECAM output

HV-E275DK
RF output
UHF channel between 30 and 39,
G PAL/G SECAM,
K PAL/K SECAM output
Video output
1.0 Vp-p, 75 ohms unbalanced
Audio output
–8 dBs, 3.3 k ohms, unbalanced

Operating temperature
5°C – 40°C
Input/output
Audio output (AUDIO OUT): phono jack (1)
Video output (VIDEO OUT): phono jack (1)
Antenna input (AERIAL): IEC connector,
75 ohms (1)
Antenna output (RF OUT): IEC connector,
75 ohms (1)

HV-E1010DH
Power requirements
220 V AC, 50/60 Hz

HV-E212SH
Power requirements
120/220 – 240 V AC, 50/60 Hz

HV-E212SE/E1010SE
Power requirements
230 V AC, 50 Hz

HV-E275DK
Power requirements
120/220 – 240 V AC, 50/60 Hz
Power consumption
25 watts
Dimensions
360 (W) × 95 (H) × 292 (D) mm
(14 1/4 × 3 3/4 × 11 1/2 in.)
Weight 4.6 kg (10.12 lbs.)

● Design and specifications are subject to change without notice.

STANDARD MAINTENANCE

1. SERVICE SCHEDULE OF COMPONENT

○ : Check ● : Change

DECK		Periodic Service Schedule			
Ref. No.	Parts Name	1000 h	2000 h	3000 h	4000 h
2-2	UPPER DRUM	○	●	○	●
4-6	PINCH ROLLER A		●		●
3-32	CAPSTAN MOTOR ASSY		●		●
5-27	CLUTCH ASSY		●		●
4-46	LM ASSY			●	
6-22	MAIN BELT		●		●
3-5	BT BAND ASSY		●		●
5-29	DRIVE BELT		●		●
4-41	BRAKE SHOE		●		●
6-1	LOADING BELT		●		●
5-26	FL BELT		●		●
2-5	DRUM EARTH			●	
4-21	ACE HEAD HV225211			●	
3-25	REEL ASSY			●	

NOTE :

1. Clean all parts for the tape transport.
   Upper Drum with video head/Pinch Roller A/ACE Head
   operating the unit.
2. After cleaning up the parts, perform all DECK ADJUSTMENT.

2. CLEANING

1. Cleaning of "Video Head" (See Figure – 1)
   Head cleaning by using a chamois skin.

   – Procedure –
   1) Remove the "Cabinet, Steel".
   2) Put on a glove (thin type) to avoid touching the "Upper Drum"and "Lower Drum"with bare hand.
   3) Put a few drops of alcohol on the chamois skin, and by slightly placing it against the "Head Tip", allow the "Upper Drum"to turn the right and left.

   – Remark –
   1) The video head is a very hard material, but since it is very thin, avoid cleaning it vertically.
   2) Wait for the cleaned part to dry out, before operating the unit.
   3) Do not reuse stained chamois skin.

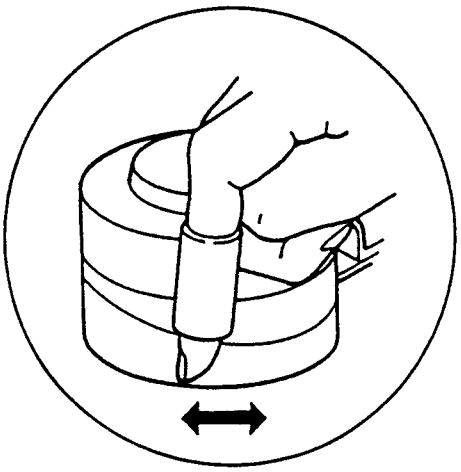


Fig-1

2. Cleaning of "ACE Head" (See Figure – 2)
   Head cleaning by using a chamois skin.

   – Procedure –
   1) Remove the "Cabinet, Steel".
   2) Put a few drops of alcohol on the chamois skin, clean up the "Audio Control Head", being careful not to damage the "Upper Drum" and other tape running parts.

   – Remark –
   1) Avoid cleaning "ACE Head" vertically.
   2) Wait for the cleaned part to dry well, before operating the unit.

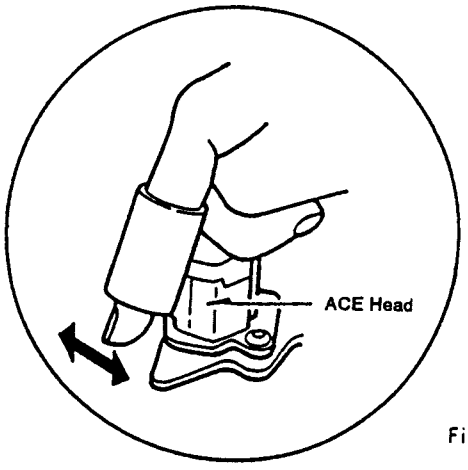
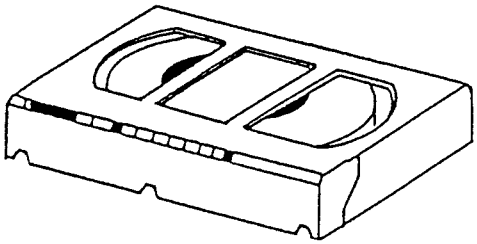


Fig-2

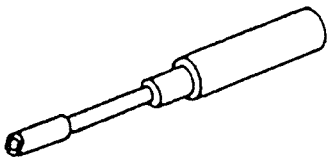
1. SERVICE JIG AND TOOLS

Ref. No.	Name	Purpose
J-1	Torque Meter (FSJ-VHT-063)	Tape Back Tension Check
J-2	Special Driver (SMALL)	Guide Roller Adjustment
J-3	Special Driver (LARGE)	X Value Adjustment
J-4	Mirror	Tape Pass Check
J-5	Alignment Tape (TTV-P2)	FM Wave Form/Audio Head Azimuth Adjustment
J-6	Alignment Tape (TTV-P1)	A/C Head Height/Tilt Adjustment
J-7	Box Driver M3	Tape Guide/A/C Head Height Adjustment
J-8	VCR EXT CONN KIT (Parts No. 09-054-021-010)	Extension JIG for Front C. B
J-9	EXT PCB KIT (Parts No. 09-054-012-010)	Extension JIG for Head C. B

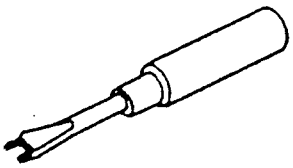
J – 1, J – 5, J – 6



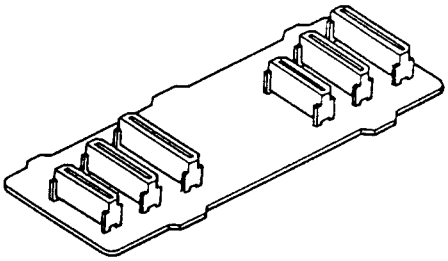
J – 7



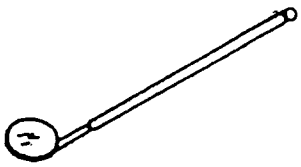
J – 2, J – 3



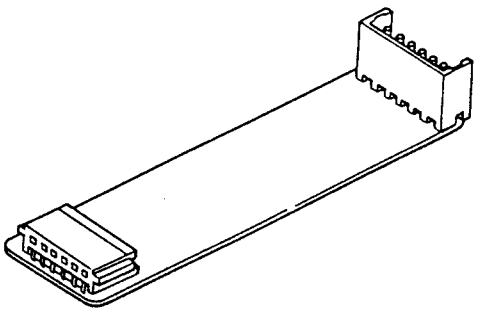
J – 8



J – 4



J – 9



2. HOW TO ASSEMBLE THE JIGS

1. Assembling the J - 8 (See Figure - 1)

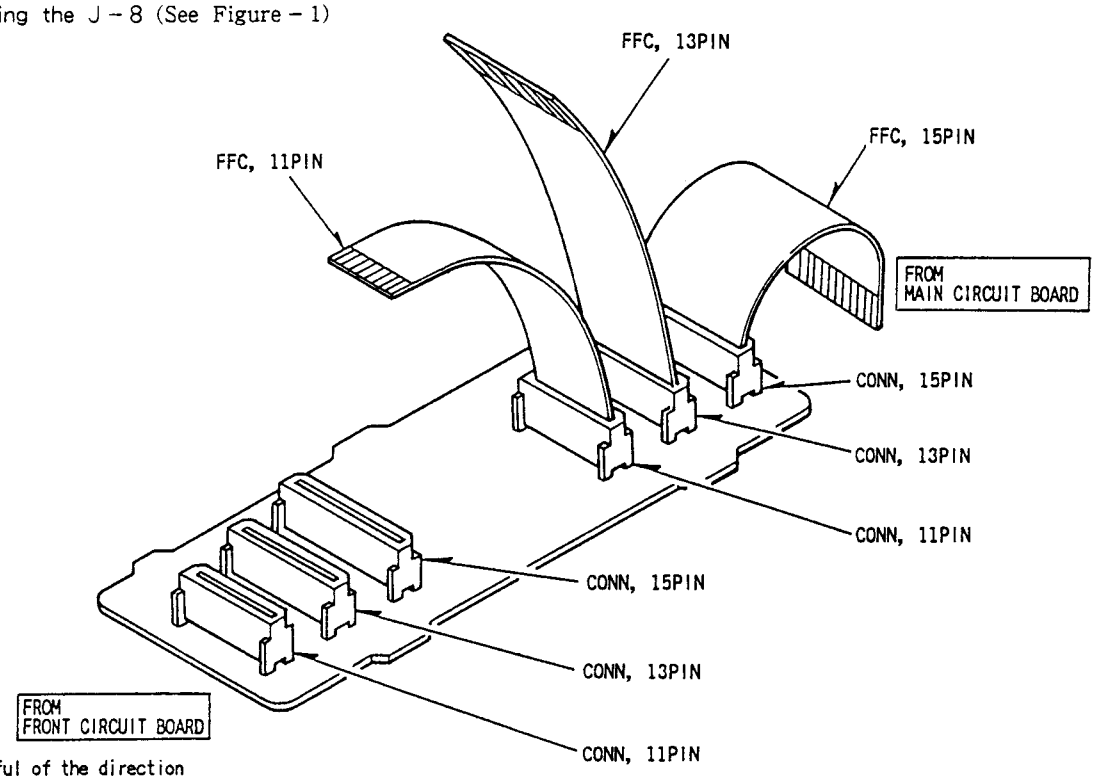


Fig - 1

Place the circuit boards as shown in the figure above and assemble the connectors assembly and connectors, taking care of their directions.

2. Assembling the J - 9. (See Figure - 2)

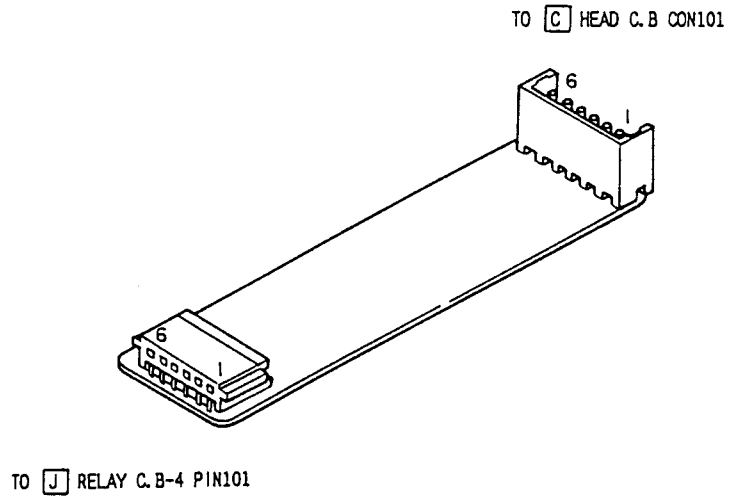


Fig - 2

Place the circuit board with the solder side down as shown in the figure above and assemble the connectors, taking care of their direction.

3. HOW TO USE THE JIGS

1. Using the J - 8 (See Figure - 1)

Use these jigs when the "Main C. B" is lifted for servicing and adjustment.

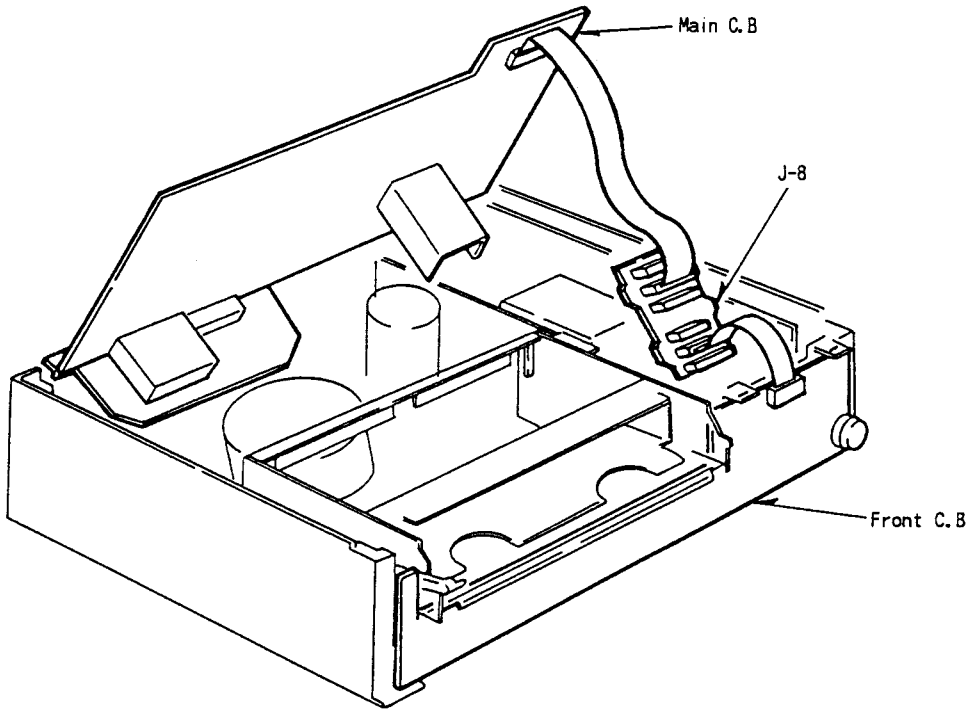


Fig - 1

2. Using the J - 9 (See Figure - 2)

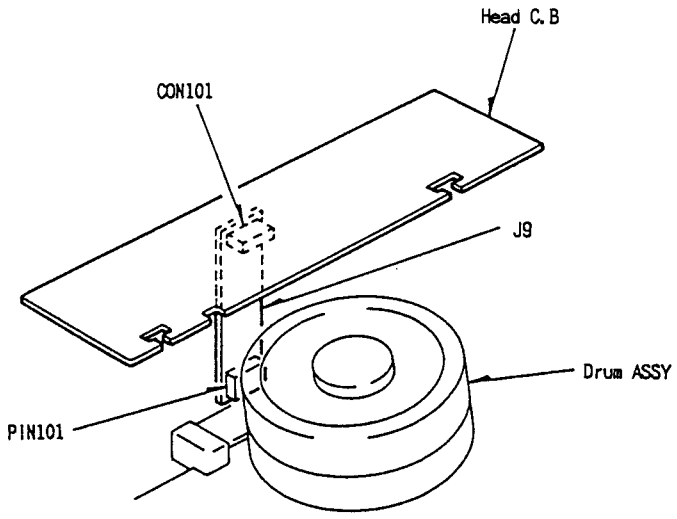


Fig - 2

Use this jig when serving the "Head C. B".

DISASSEMBLY INSTRUCTIONS

1. "Cabinet, Steel" And "Cabinet Front ASSY" Removal (See Figure – 1)
   1) Remove 2 screws and the "Cabinet, Steel".
   2) Release 5 hooks and remove the "Cabinet Front ASSY".

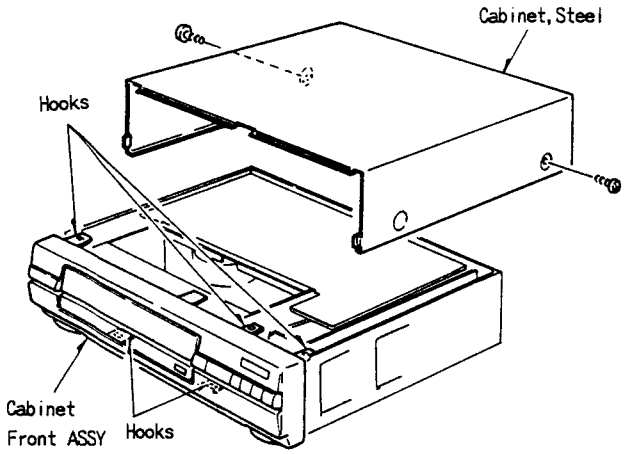


Fig – 1

2. "Main C. B" Removal (See Figue – 2)
   1) Remove 5 screws (Ⓐ×2, Ⓑ×3) the "Main C. B".

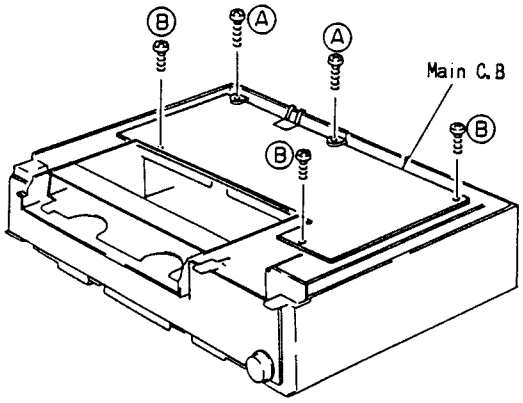


Fig – 2

3. "Mechanism ASSY" Removal (See Figure – 3)
   1) Remove 1 screw (Ⓐ) and the "Head C. B".
   2) Remove 3 screws (Ⓑ) and the "Mechanism ASSY".

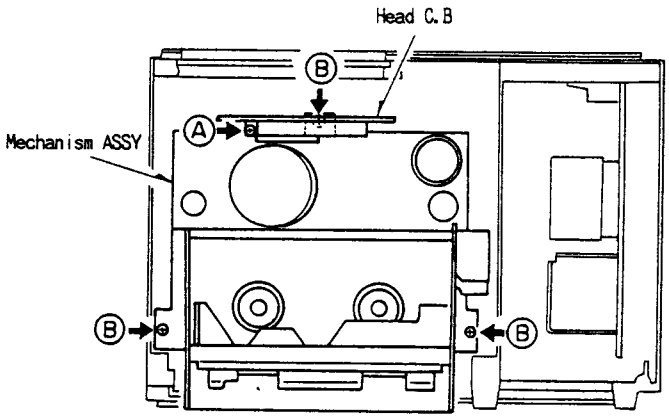


Fig – 3

4. "Front Loading ASSY" Removal (See Figure – 4)
   1) Remove "Main Belt".
   2) Remove 4 screws (Ⓐ).
   3) Release the hooks on both sides and remove the "Front Loading ASSY". (Since it is difficult to release these hooks, hold the front of the "Front Loading ASSY" and shake it up and down to release them.)

5. "Cassette Load Bracket ASSY" Removal (See Figure – 4)
   1) Remove 1 screw (Ⓑ).
   2) Take off the "Cassette Load Bracket ASSY".

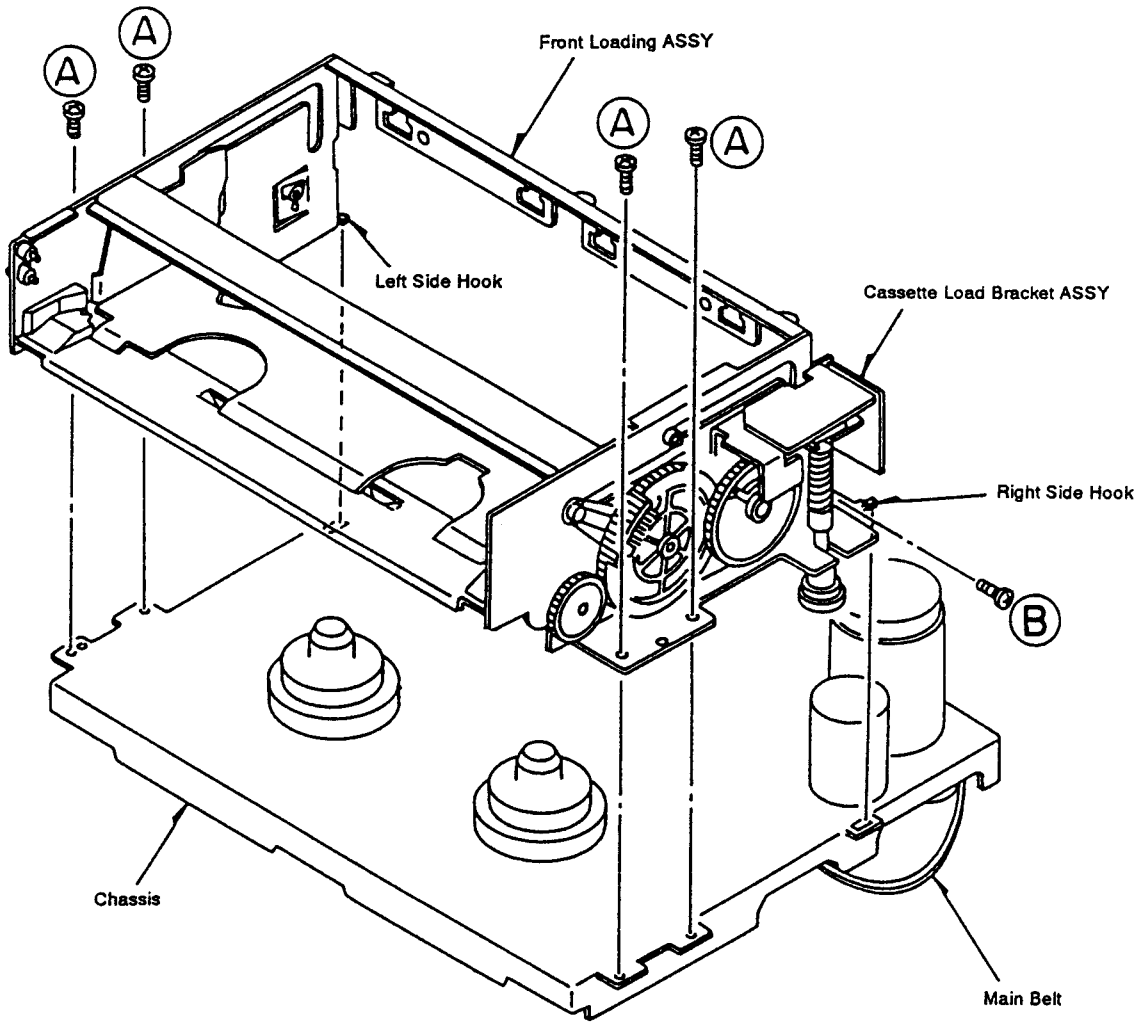


Fig.-4

6. "Photo Sensor ASSY" Removal (See Figure – 5)

6 – 1. "Lamp Holder ASSY" Removal

1) Remove 1 screw (Ⓐ) and take off the "T Soft Brake ASSY", "T – Spring, Soft Brake Arm".

2) Release the "Lamp Holder ASSY" from hook (a) of the chassis and turn it counterclockwise to remove it from the chassis.

6 – 2. "Switch C. B", "Sensor Guide" and "Start Sensor C. B" Removal

1) Remove 1 screw (Ⓑ) and take off the "Switch C. B".

2) Remove 1 screw (Ⓒ) and take off the "Sensor Guide".

3) Remove 1 screw (Ⓓ) and take off the "Start Sensor C. B".

6 – 3. "Sensor Guide" and "End Sensor C. B" Removal

1) Remove 1 screw (Ⓔ) and take off the "Sensor Guide".

2) Remove 1 screw (Ⓕ) and take off the "End Sensor C. B".

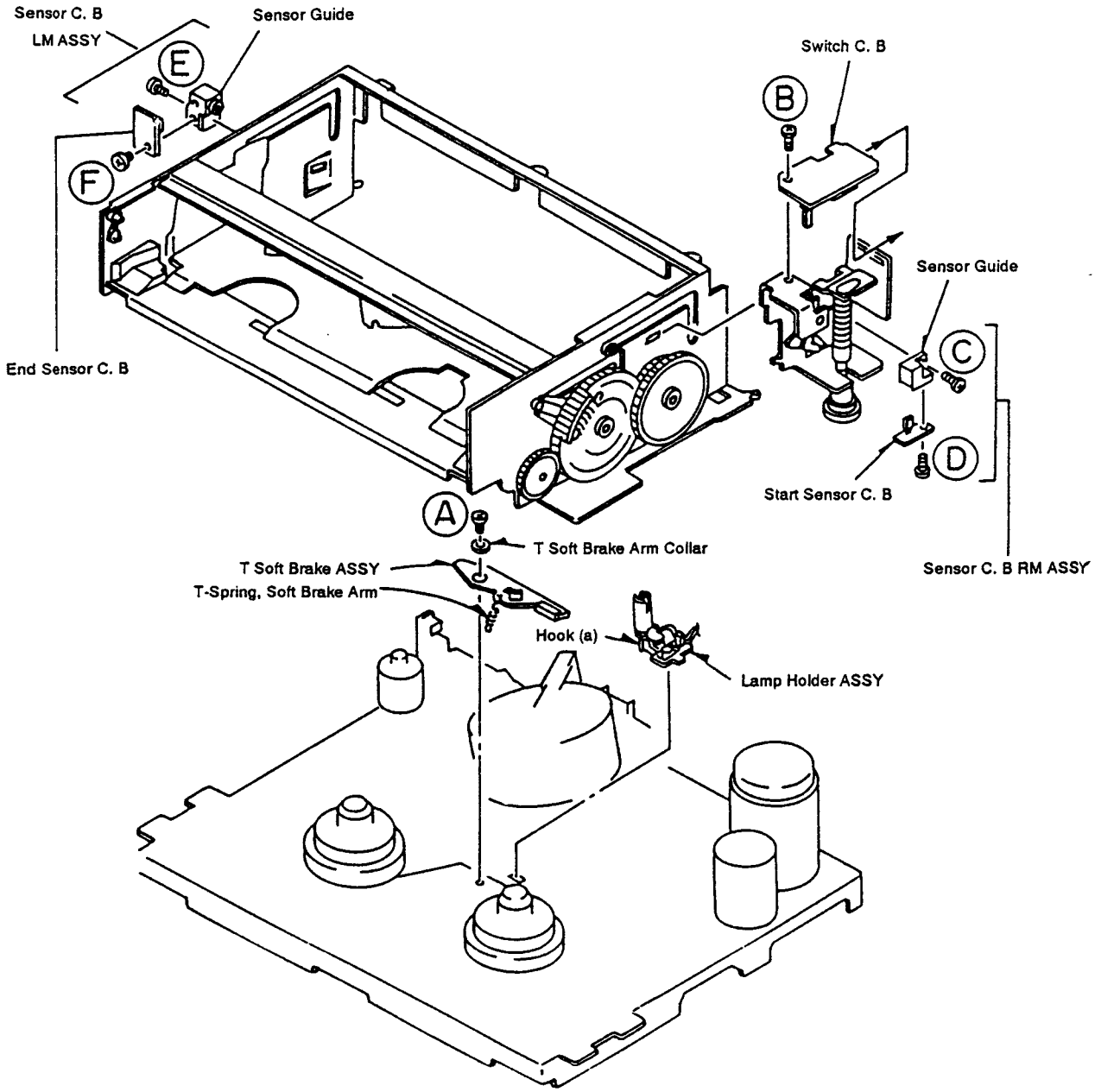


Fig.-5

7. "Tape Guide Flange A" and "ACE Head" Removal (See Figure – 6)
   1. "Tape Guide Flange A" Removal
      1) Remove Nut (Ⓐ).
      2) Take out the "Impedance Reller" and pull up the "Tape Guide Flange A".
   2. "ACE Head" Removal
      1) Remove 2 screws (Ⓑ × 1, Ⓒ × 1) and "Azimuth Spring".
      2) Remove 1 screw (Ⓓ) and "ACE Head".

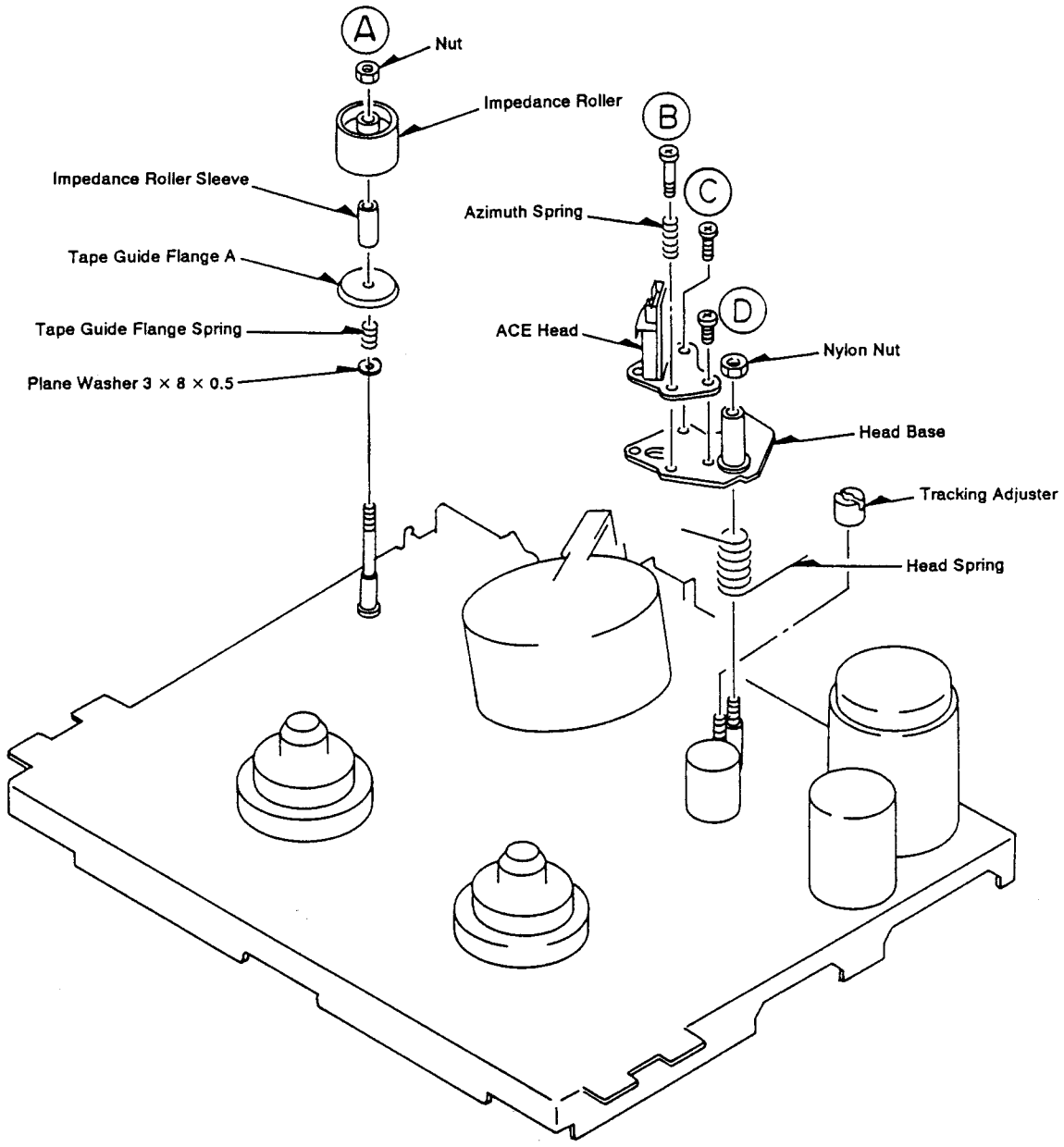


Fig.-6

8. "Reel Drive Gear" Removal (See Figure – 7)
   1) Remove the "Front Loading ASSY".
   2) Remove "Drive Belt".
   3) Remove Poly – Washer (Ⓐ) and "Middle Pulley ASSY".
   4) Remove 3 screws (Ⓑ× 1, Ⓒ× 2) and take off the "Sub Plate ASSY".
   5) Remove Nylon – Washer (Ⓓ) and take off the "Clutch ASSY".
   6) Remove 1 screw (Ⓔ) and take off the "T – Spring, Soft Brake Arm".
   7) Take off the "T Soft Brake ASSY".
   8) Remove 2 "E – Rings (Ⓕ)" and take off the 2 "Reel Drive Gears".

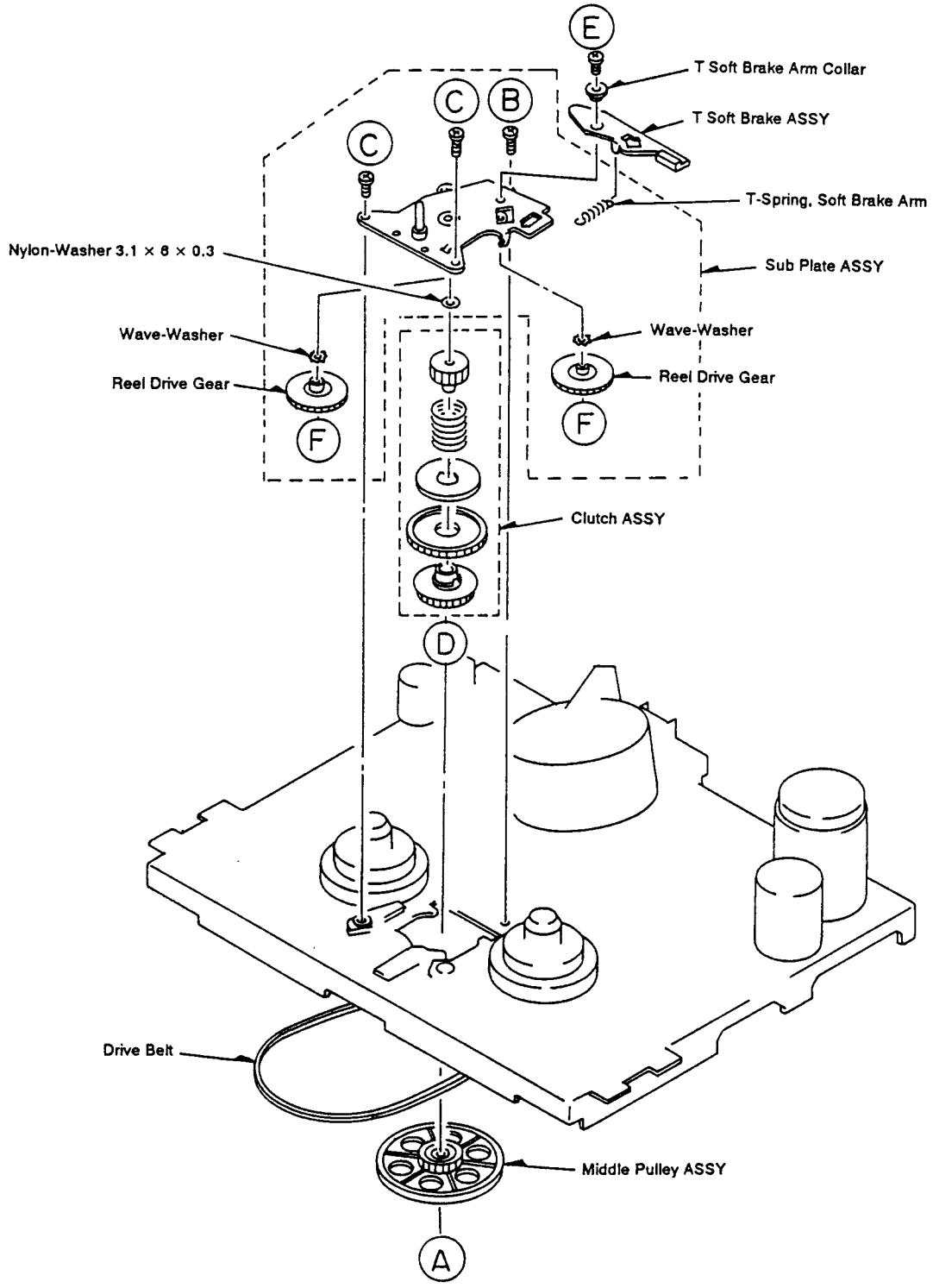


Fig.-7

9. "BT Band ASSY" And "BT Arm Semi ASSY" Removal (See Figure – 8)
   1) Remove the "Front Loading ASSY".
   2) Remove Poly – Washer (Ⓐ) and "BT Actuate Plate Spring" from the "BT Arm Semi ASSY".
   3) Remove 1 screw (Ⓑ) and "Band Holder Spring".
   4) Take off the "BT Band ASSY" from the "BT Arm Semi ASSY".

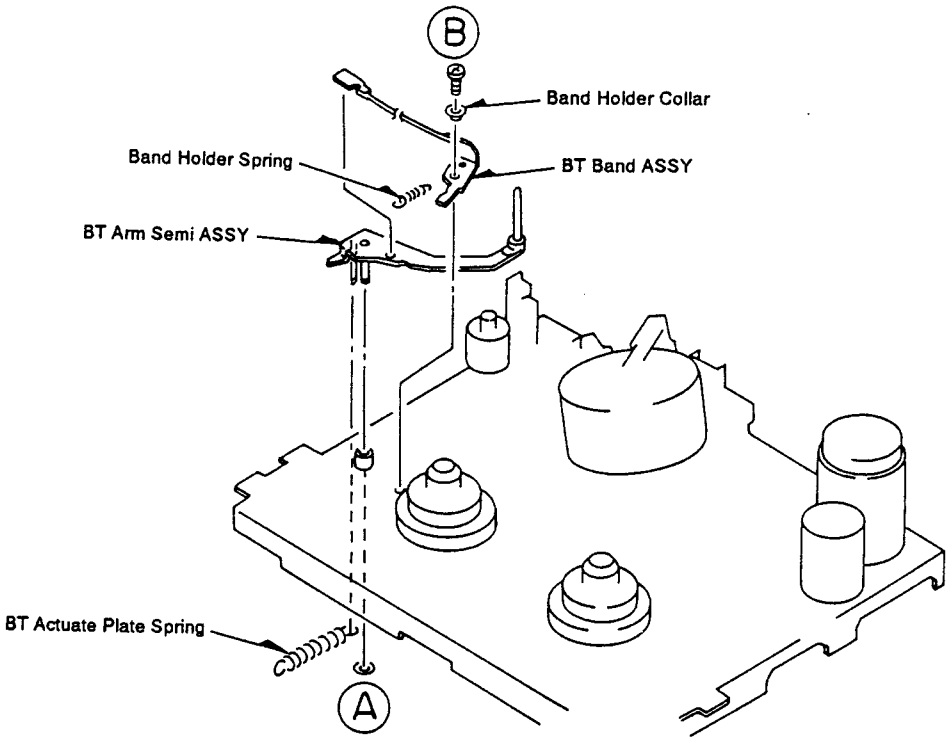


Fig.-8

10. "Reel ASSY" Removal (See Figure – 9)
   1) Remove the "Front Loading ASSY", "Gear Holder ASSY" and "BT Band ASSY".
   2) Remove 1 screw (Ⓐ) and the "Back Tension Support".
   3) Remove the 2 "Reel ASSY".

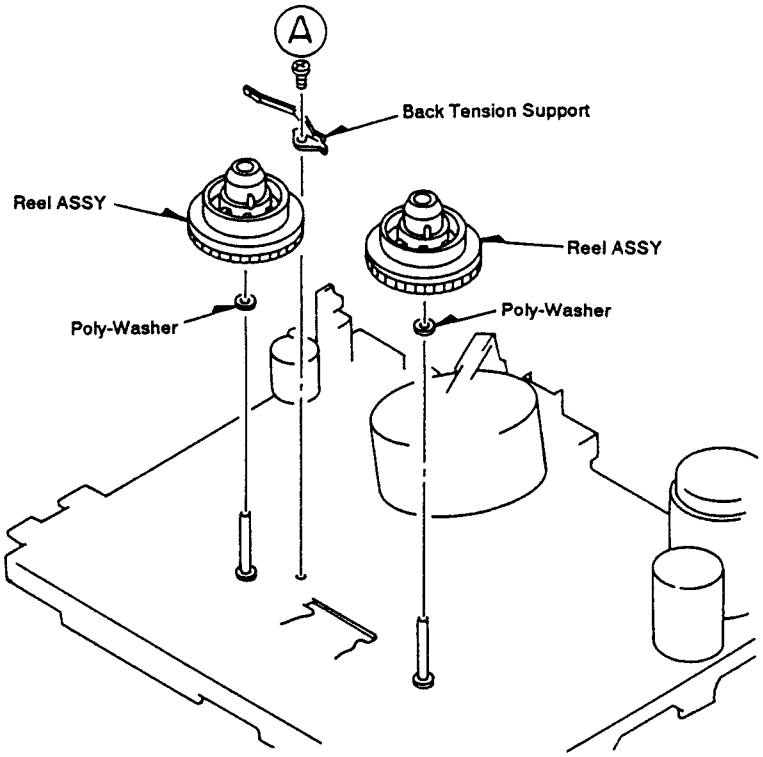


Fig.-9

11. "Cylinder ASSY" Removal (See Figure – 10)

1) Remove the "Front Loading ASSY".
2) Pull out the "RELAY C. B – 5" from the "Cylinder Motor TM85."
3) Remove 1 screw (Ⓐ) and take off the "Drum Earth".
4) Remove 3 screws (Ⓑ) and take off the "Cylinder ASSY".

= Remarks =

Take off the "Cylinder ASSY" carefully without any damage.

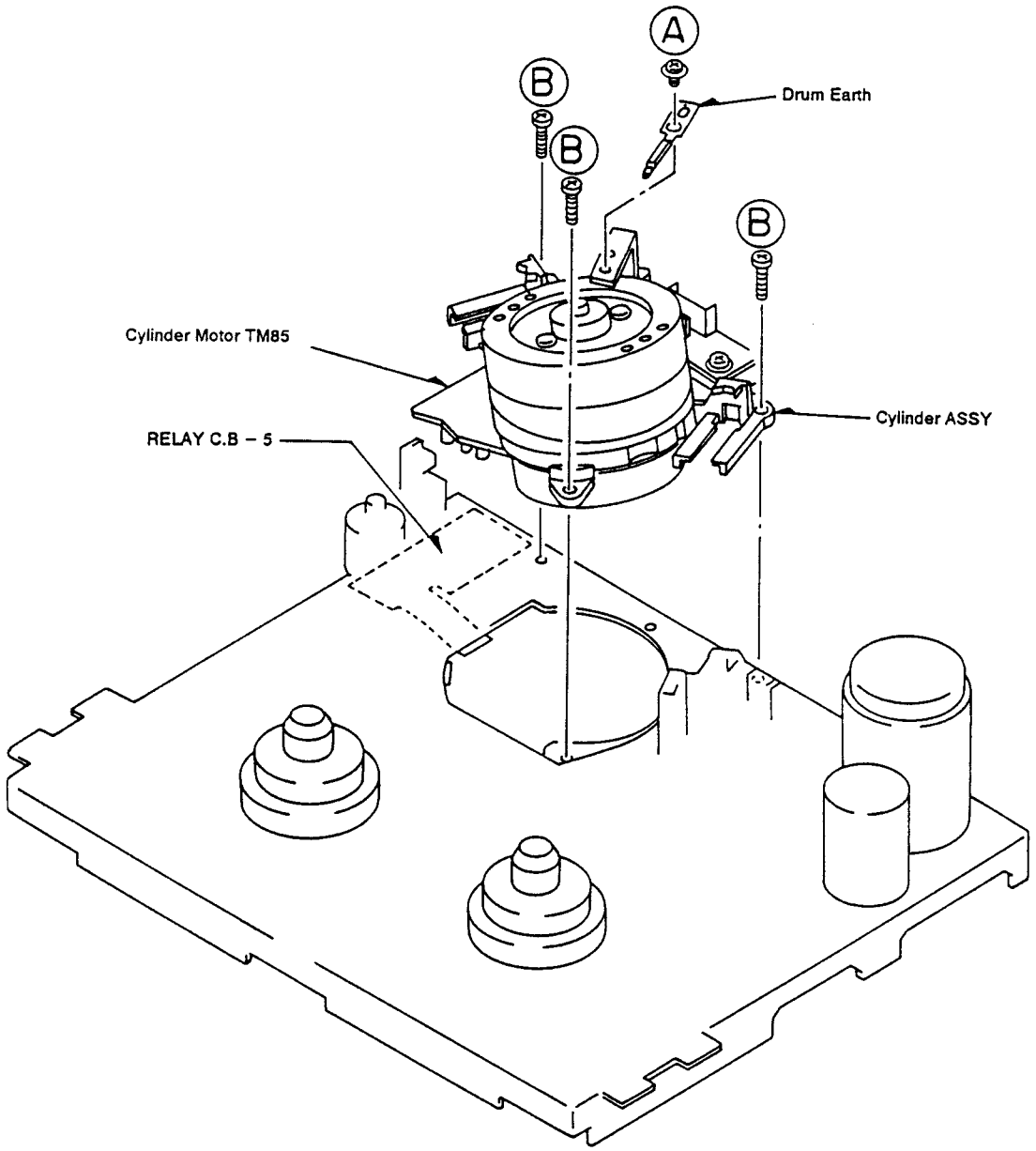


Fig.-10

12. "Upper Drum" Removal (See Figure – 11)
    1) Remove the "Front Loading ASSY".
    2) Remove 1 screw (Ⓐ) and take off the "Drum Earth Bracket".
    3) Remove 2 screws (Ⓑ) and take off the "Upper Drum" in the direction of the arrow.

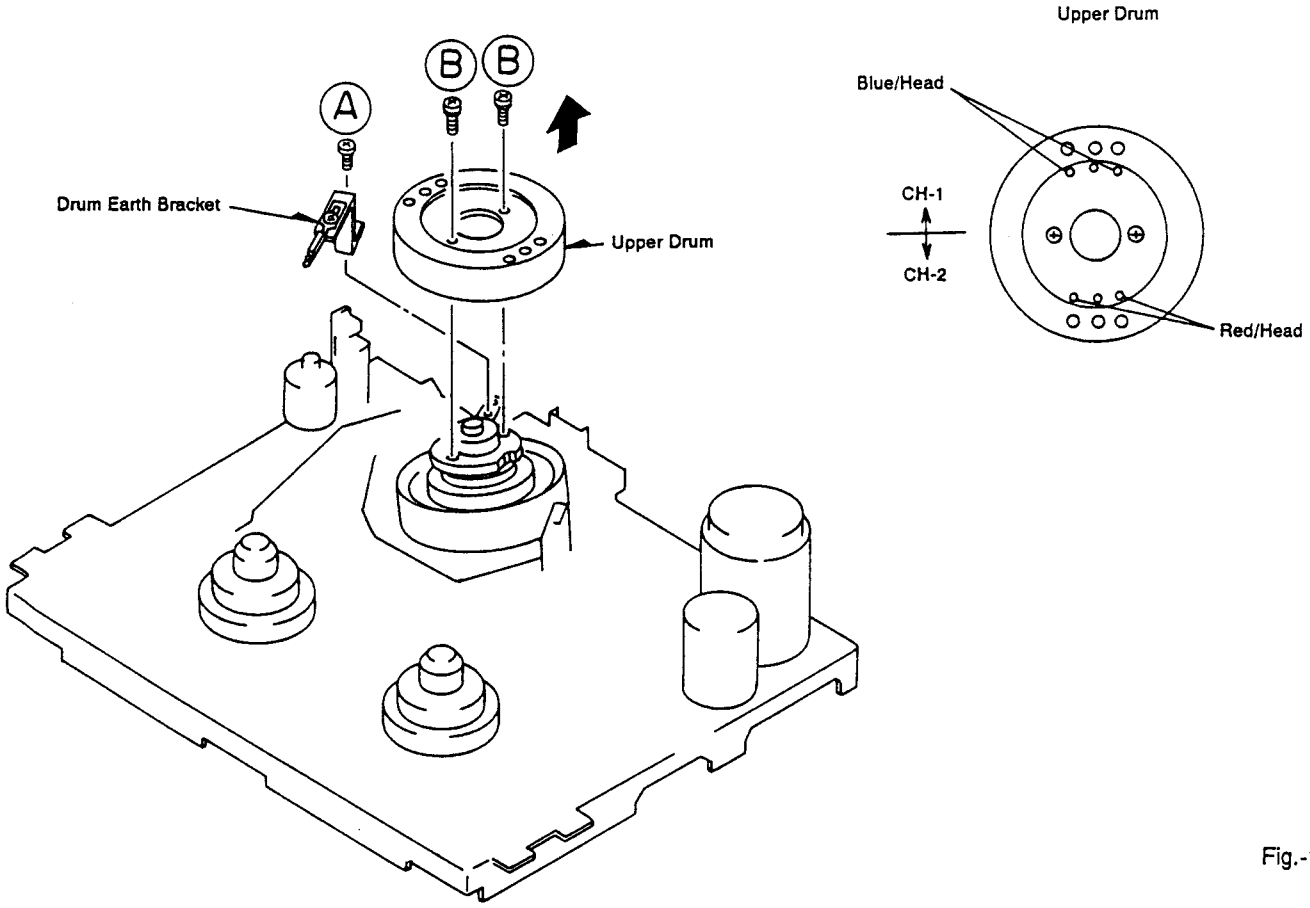


Fig.-11

= Remark =

1. Use gloves and do not touch the drum surface with bare fingers.
2. If the Video head is defective, replace the complete "Upper Drum" with the Head.
3. When installing "Upper Drum" and "Rotor", "Upper Drum" point ⓐ, "Lower Drum" point ⓑ and "Rotor" point ⓒ, these point ⓐ, ⓑ, ⓒ must line up each other. Otherwise it will creates problem. (See Figure – 11 – 1)

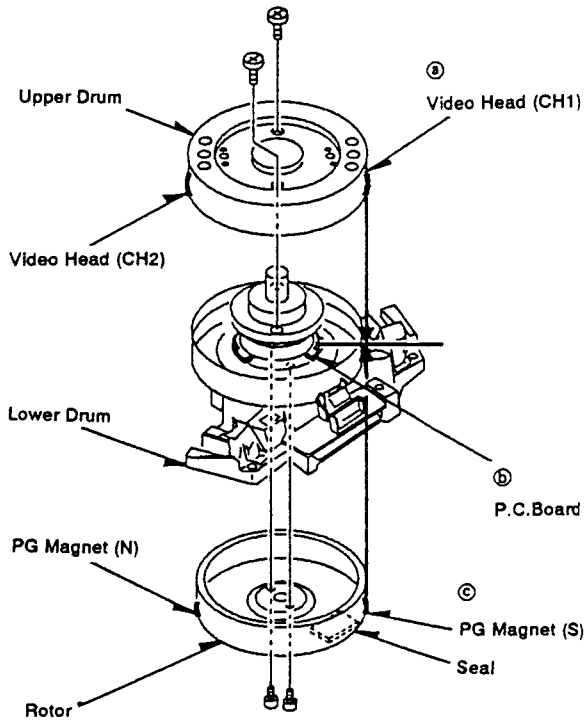
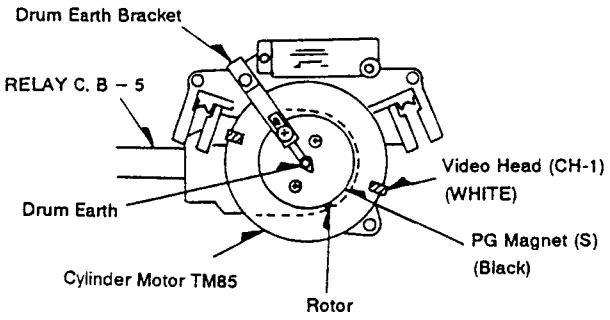


Fig.-11-1

13. "Cylinder Motor TM85" Removal (See Figure – 12)
    1) Pull out the "RELAY C. B – 5" from the "Cylinder Motor TM85".
    2) Remove 2 screws (Ⓐ) and take off the "Cylinder Motor TM85a".
    3) Remove 3 screws (Ⓑ) and take off the "Cylinder Motor TM85b".



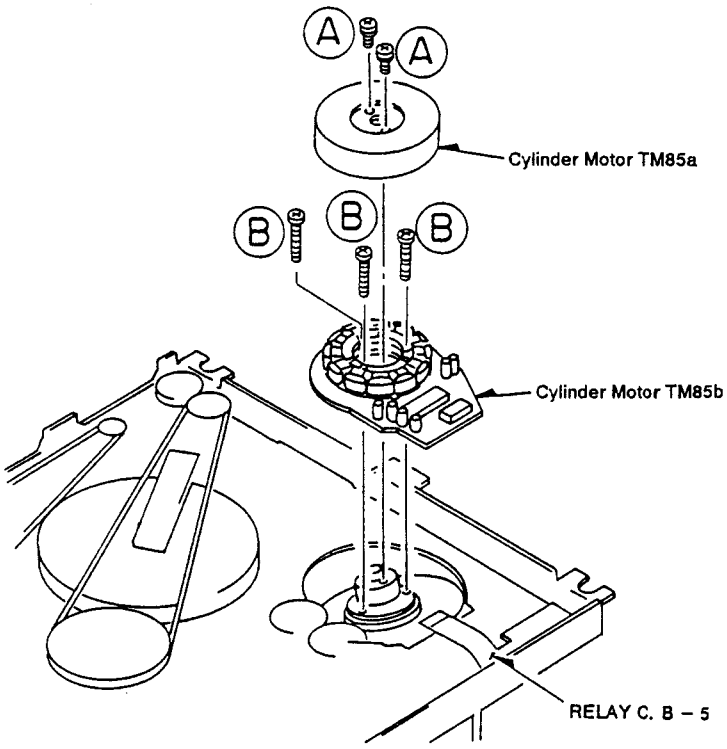


Fig.-12

14. "Capstan Motor ASSY" and "LM ASSY" Removal (See Figure – 13)
    1. "Capstan Motor ASSY" Removal
        1) Take off the "Drive Belt" and "Main Belt".
        2) Remove 2 screws (Ⓐ) and take off the "Capstan Motor ASSY".
    2. "LM ASSY" Removal
        1) Take off the "Fl Belt".
        2) Remove 2 screws (Ⓑ) and take off the "LM ASSY".

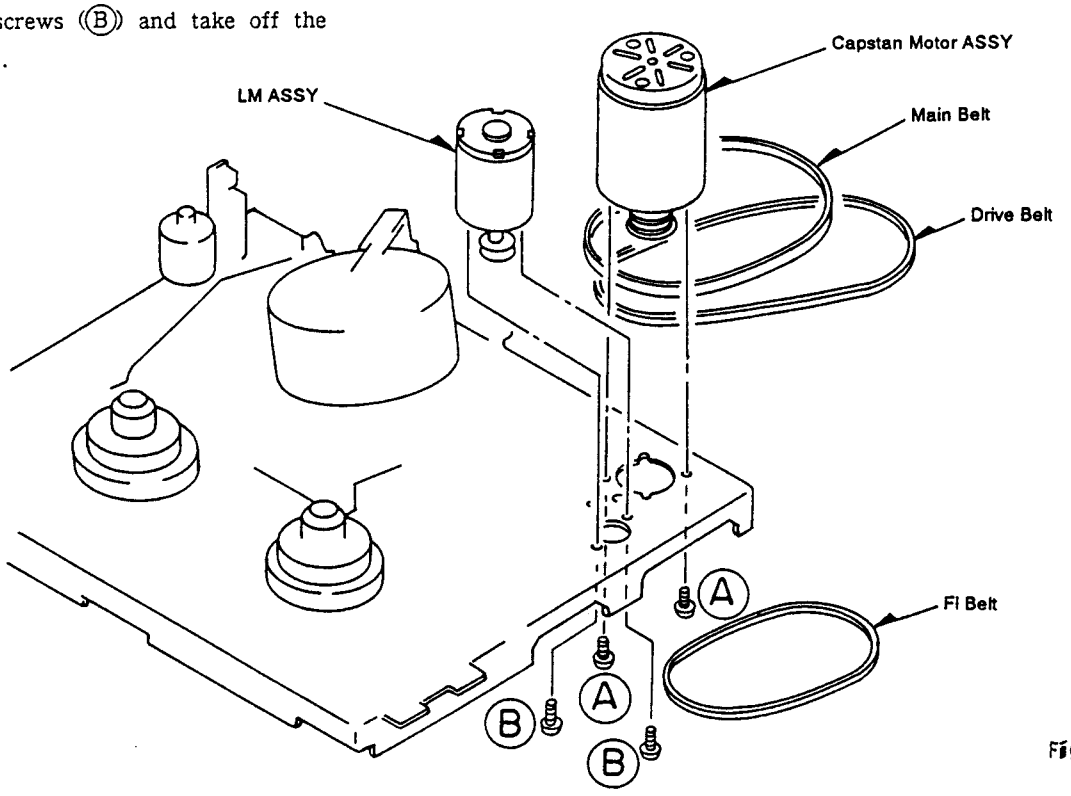


Fig.-13

15. "Loading Gear" and "Loading Cam" Removal (See Figure – 14)

1) Take off the "Loading Belt" from the "Loading Pulley".
2) Remove Poly – Washer (Ⓐ) and take off the "Loading Pulley".
3) Remove Poly – Washer (Ⓑ) and take off the "Loading Gear".
4) Remove Poly – Washer (Ⓒ) and take off the "Eject Actuate Arm" and the "Brake Actuate Arm".
5) Remove 2 screws (Ⓓ), and take off the "Loading Lever Reinforce Plate" and the "Loading Lever ASSY".
6) Take off the "Loading Cam".

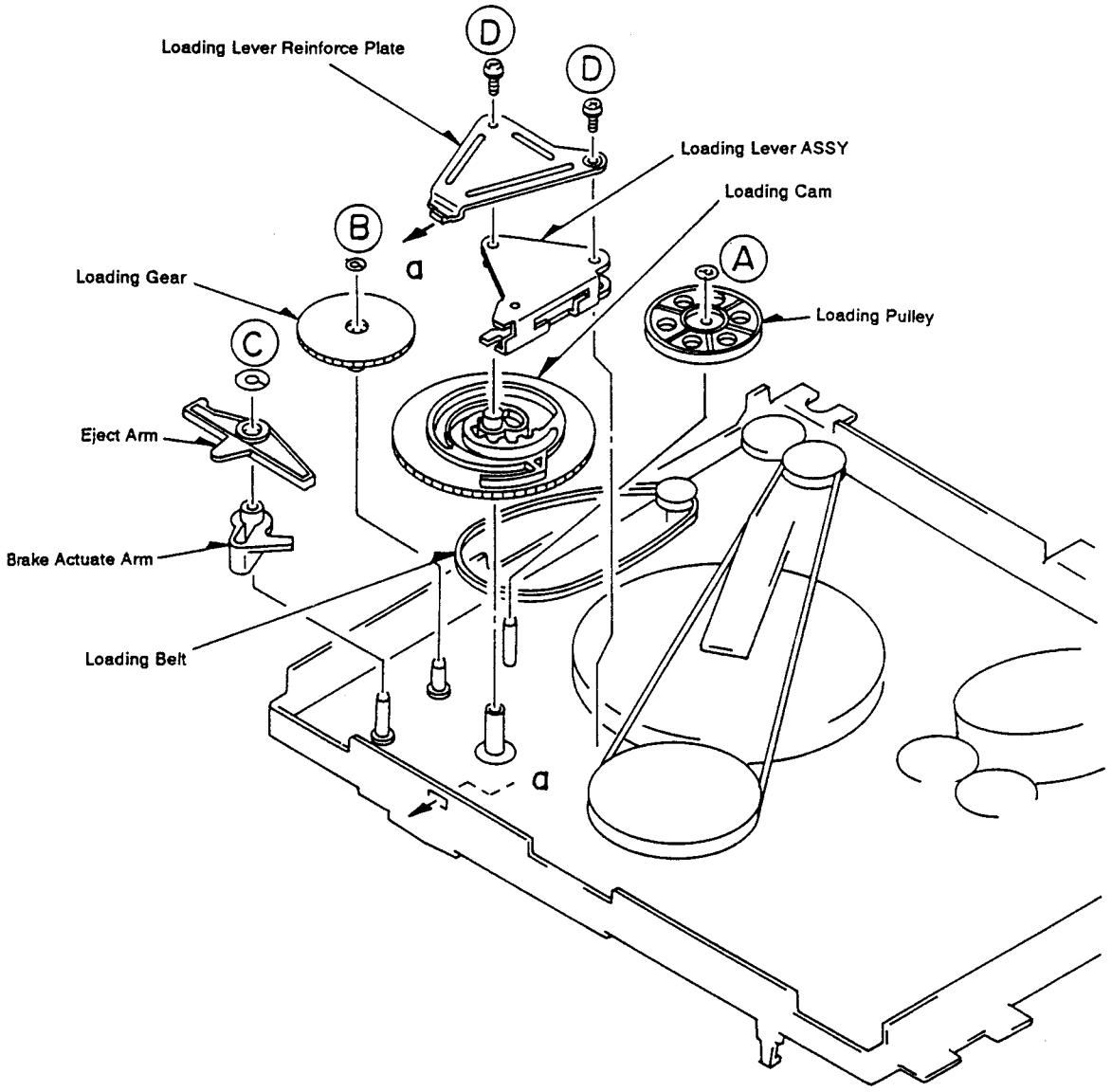


Fig.-14

16. "Flywheel Capstan" Removal (See Figure – 15)

1) Remove the Nylon – Washer (Ⓐ).
2) Take off the "Drive Belt" and "Main Belt".
3) Remove 2 screws (Ⓑ) and take off the "FL Angle ASSY".
4) Take off the "Flywheel Capstan".

≡ Remark ≡

Do not miss the Poly – Washer (Ⓒ) when pulling out the "Flywheel Capstan".

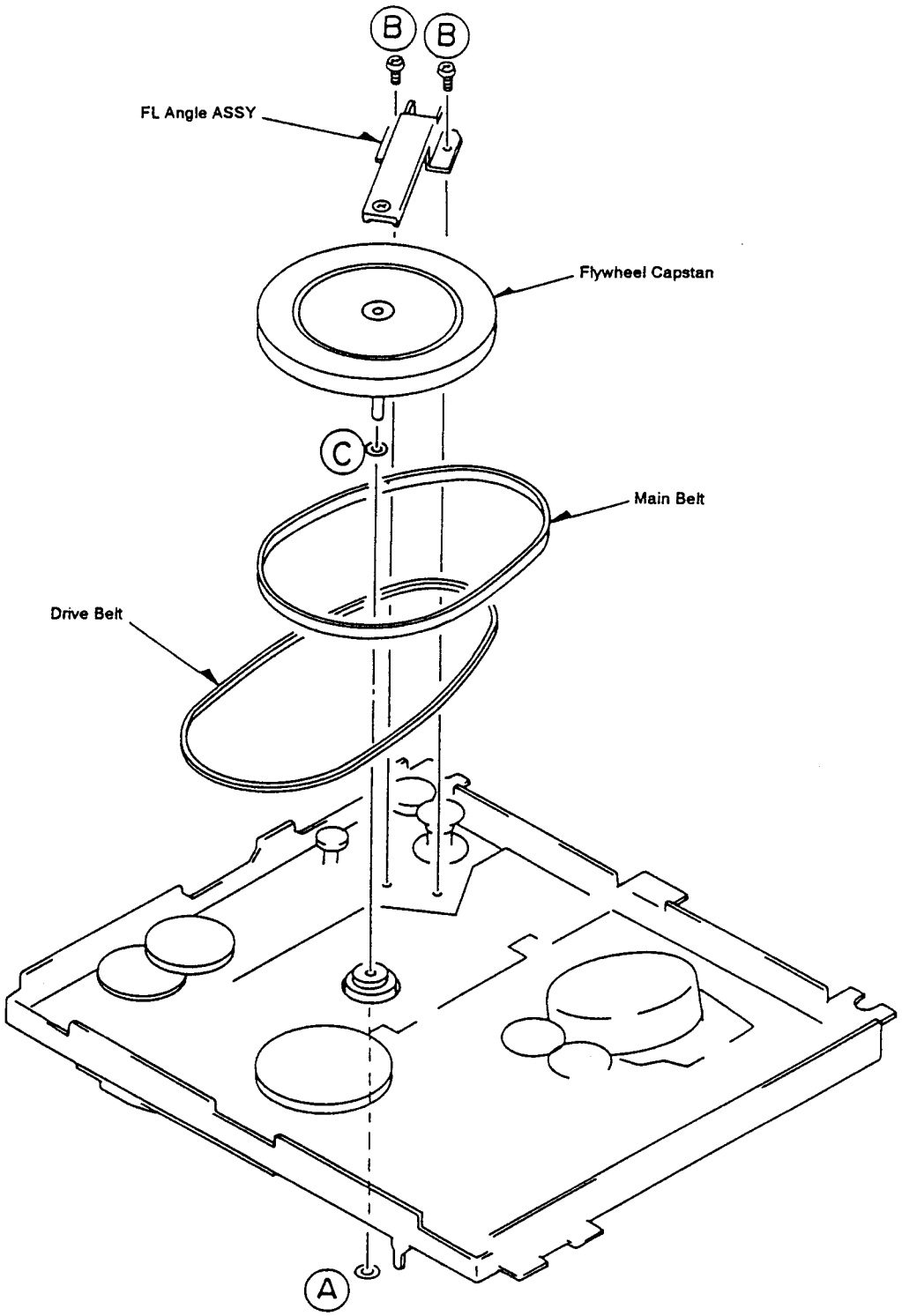


Fig.-15

17. "Reel Sensor" Removal (See Figure – 16)

1) Remove "Front Loading ASSY" and the "Gear Holder ASSY".
2) Remove "Reel ASSY".
3) Remove "Reel Sensor".

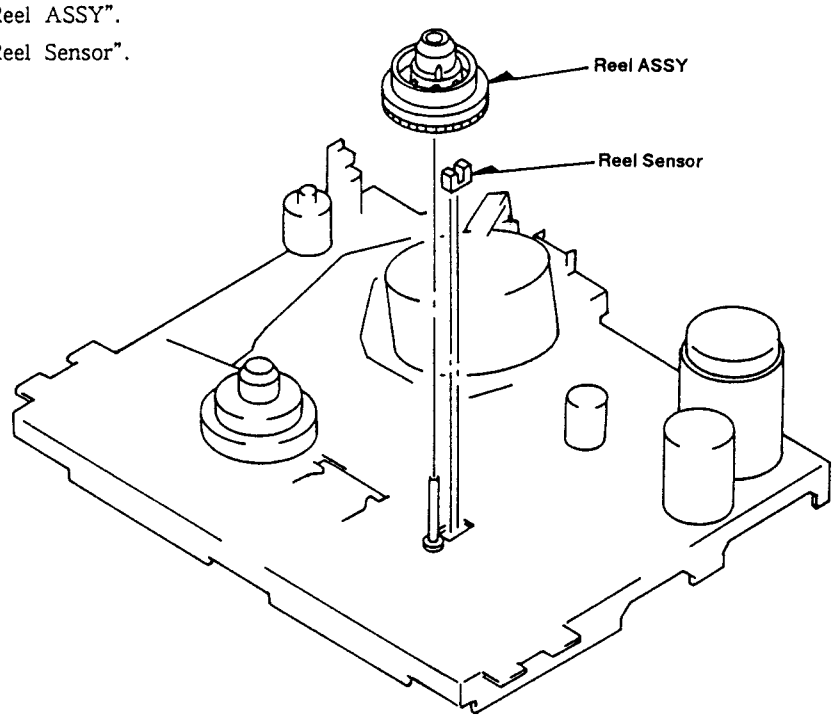


Fig.-16

18. "Loading Base Semi ASSY" Removal (See Figure – 17)

1) Remove "Cylinder ASSY", "BT Arm Semi ASSY", "BT Band ASSY" and "Front Loading ASSY".
2) Remove 1 screw (Ⓐ) and "L Gear Plate Collar", "L Gear Plate".
3) Remove 2 screws (Ⓑ).
4) Take off the "Loading Base Semi ASSY".

= Remark =

When installing the "L Gear Plate", align markings ⓐ on the "T Loading Gear L" and "L Gear Plate".

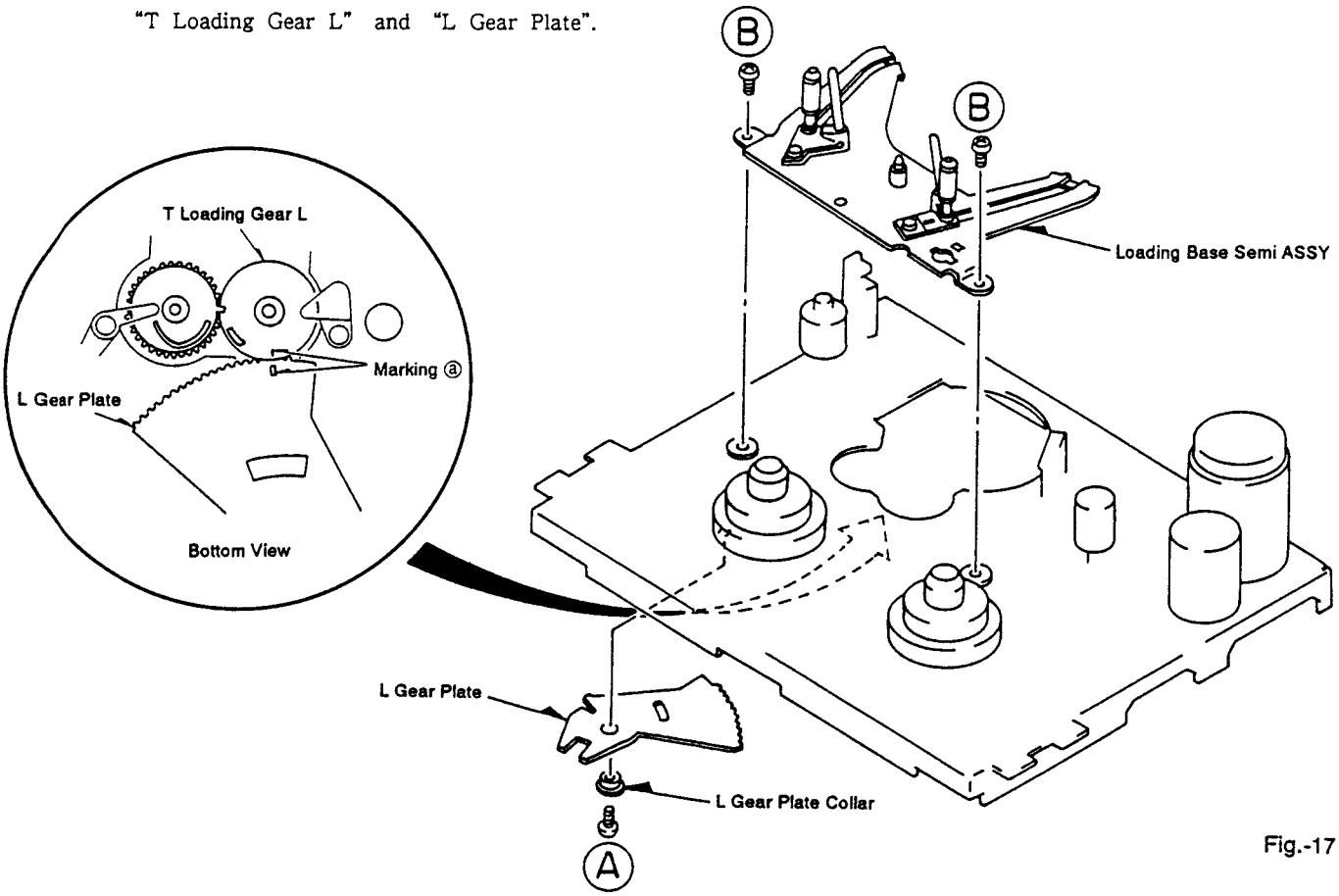


Fig.-17

19. "Wormwheel ASSY" Removal (See Figure – 18)

1. Disassembly

1) Remove "Front Loading ASSY".

2) Remove "Cassette Load Bracket ASSY".

3) Remove E – Ring (Ⓐ).

4) Remove "Wormwheel ASSY." ("Wormwheel", "Friction Spring", "Friction Gear")

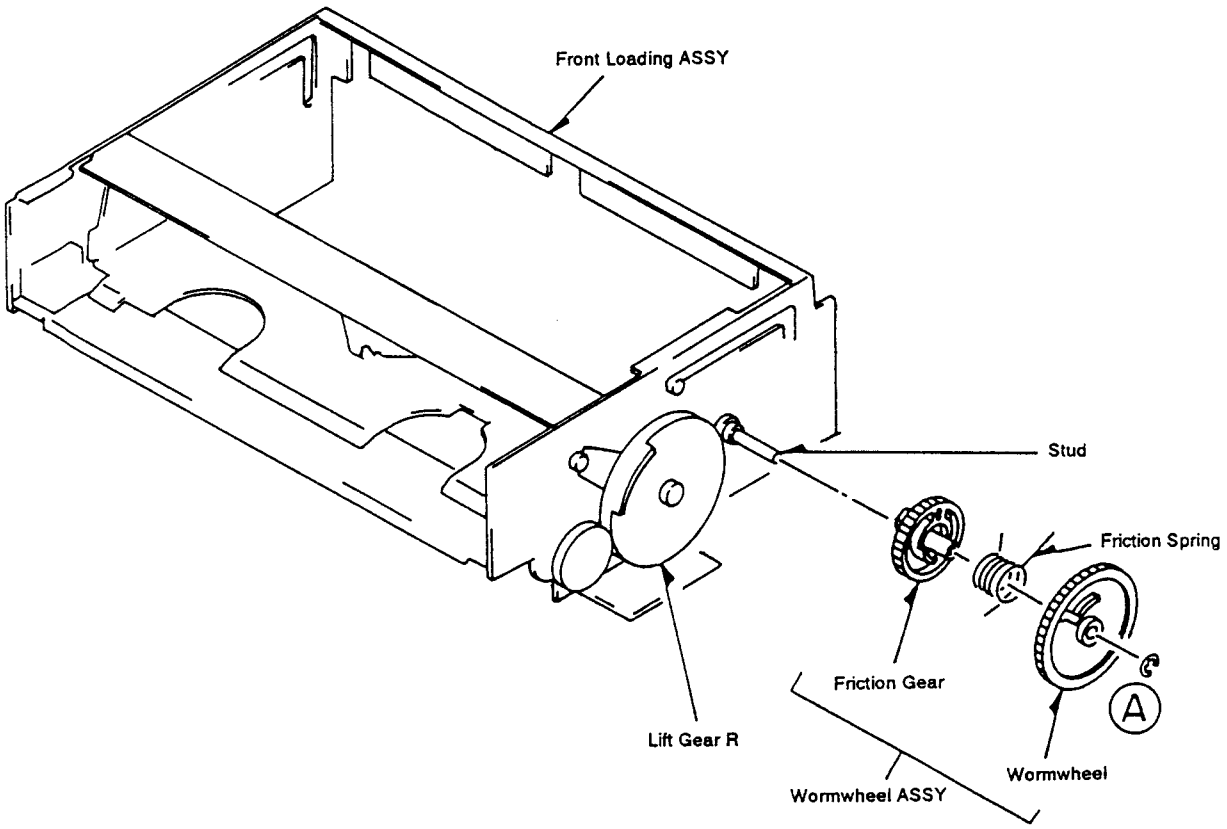
2. Assembly

1) Turn the "Lift Gear R" fully counterclockwise.

2) Restore "Wormwheel ASSY" to the stud.

= Remark =

Match "Lift Gear R" to the "Wormwheel Hole" as illustrated.



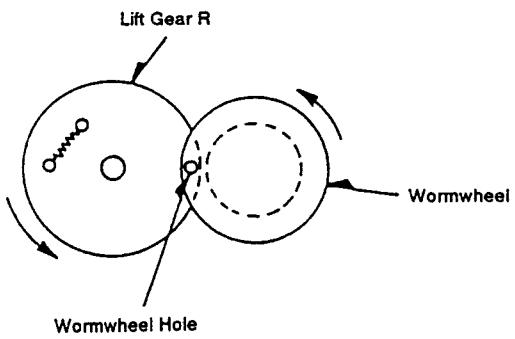


Fig.-18

ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は最終ページの "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO.	PART NO.	DESCRIPTION
=== IC ===		
	87-001-778-010	IC, AN3331K
	87-001-993-010	IC, BA10324
	87-001-777-010	IC, BA6219B
	87-001-938-010	IC, LA7311
	87-002-752-010	IC, LA7391
	87-002-394-010	IC, LB1641
	87-001-771-010	IC, LC8992
	87-001-180-010	IC, M5223L
	89-JU7-614-010	IC, MN67481P
	87-027-939-010	IC, NJM4558S
	87-020-969-010	IC, NJM78M09
	87-002-852-080	IC, PST572D
	87-001-790-010	IC, UNIT, SBX1610-52(REMOTE SENSOR)
	82-JUA-617-010	IC, UPD75108CW-W02
=== TRANSISTOR ===		
	87-026-463-080	TR, 2SA933S(RS)
	87-026-447-080	TR, 2SC1740S R
	89-324-585-080	TR, 2SC2458GR
	89-414-064-010	TR, 2SD1406Y
	87-026-501-080	TR, DTA115ES
	87-026-219-080	TR, DTA144ES
	87-026-218-080	TR, DTC144ES
	87-026-313-080	TR, DTC343TS
=== DIODE ===		
	87-001-574-080	DIODE, 1SR139-200
	87-020-465-080	DIODE, 1SS133
	87-027-474-080	ZENER, HZ11A2
	87-027-301-080	ZENER, HZ3A1
	87-027-555-080	ZENER, HZ5C2
=== MAIN CIRCUIT BOARD SECTION ===		
C101	★87-010-401-080	CAP, ELECT 1-50 SME
C102	★87-010-401-080	CAP, ELECT 1-50 SME
C103	★87-010-401-080	CAP, ELECT 1-50 SME
C104	★87-010-529-080	CAP, ELECT 1-50 BP
C106	★87-018-208-080	CAP, TC-U 0.047-50 F
C107	★87-010-264-080	CAP, ELECT 100-10 5L
C108	★87-018-209-080	CAP, TC-U 0.1-50 F
C109	★87-010-384-080	CAP, ELECT 100-25 SME
C110	★87-018-209-080	CAP, TC-U 0.1-50 F
C111	★87-010-384-080	CAP, ELECT 100-25 SME
C112	★87-018-209-080	CAP, TC-U 0.1-50 F
C113	★87-018-208-080	CAP, TC-U 0.047-50 F
C114	★87-015-683-080	CAP, ELECT 33-16 7L
C115	★87-018-208-080	CAP, TC-U 0.047-50 F
C116	★87-018-134-080	CAP, TC-U 0.01-16 Y
C117	★87-015-677-080	CAP, ELECT 100-6.3 7L
C118	★87-018-205-080	CAP, TC-U 0.022-25 F
C119	★87-018-208-080	CAP, TC-U 0.047-50 F
C121	★87-015-680-080	CAP, ELECT 47-10 7L
C122	★87-015-680-080	CAP, ELECT 47-10 7L
C123	★87-018-134-080	CAP, TC-U 0.01-16 Y
C125	★87-010-405-080	CAP, ELECT 10-50 SME
C126	★87-015-681-080	CAP, ELECT 10-16 7L
C127	★87-010-615-080	CAP, ELECT 2.2-50 BP
C128	★87-015-681-080	CAP, ELECT 10-16 7L
C129	★87-010-544-080	CAP, ELECT 0.1-50
C132	★87-018-205-080	CAP, TC-U 0.022-25 F
C133	★87-010-405-080	CAP, ELECT 10-50 SME
C134	★87-015-681-080	CAP, ELECT 10-16 7L
C135	★87-015-692-080	CAP, ELECT 0.22-50 7L
C136	★87-015-677-080	CAP, ELECT 100-6.3 7L
C137	★87-018-205-080	CAP, TC-U 0.022-25 F
C138	★87-018-205-080	CAP, TC-U 0.022-25 F
C139	★87-018-209-080	CAP, TC-U 0.1-50 F
C140	★87-018-209-080	CAP, TC-U 0.1-50 F
C301	★87-010-529-080	CAP, ELECT 1-50 BP
C304	★87-018-118-080	CAP, TC-U 82P-50 B
C306	★87-010-415-080	CAP, ELECT SRE 10-50V
C307	★87-010-135-080	CAP, ELECT 10-25 BP
C308	★87-018-208-080	CAP, TC-U 0.047-50 F
C309	★87-018-208-080	CAP, TC-U 0.047-50 F
C310	★87-018-205-080	CAP, TC-U 0.022-25 F
C311	★87-015-695-080	CAP, ELECT 1-50 7L
C312	★87-015-695-080	CAP, ELECT 1-50 7L
C313	★87-018-208-080	CAP, TC-U 0.047-50 F
C314	★87-018-205-080	CAP, TC-U 0.022-25 F
C320	★87-018-134-080	CAP, TC-U 0.01-16 Y
C321	★87-010-401-080	CAP, ELECT 1-50 SME
C322	★87-010-401-080	CAP, ELECT 1-50 SME
C323	★87-018-205-080	CAP, TC-U 0.022-25 F
C324	★87-018-134-080	CAP, TC-U 0.01-16 Y
C335	★87-018-134-080	CAP, TC-U 0.01-16 Y
C336	★87-018-208-080	CAP, TC-U 0.047-50 F
C337	★87-018-134-080	CAP, TC-U 0.01-16 Y
C338	★87-010-263-080	CAP, ELECT 100-10
C339	★87-010-405-080	CAP, ELECT 10-50 SME
C340	★87-018-208-080	CAP, TC-U 0.047-50 F
C341	★87-010-263-080	CAP, ELECT 100-10
C342	★87-018-134-080	CAP, TC-U 0.01-16 Y
C344	★87-010-405-080	CAP, ELECT 10-50 SME
C345	★87-018-134-080	CAP, TC-U 0.01-16 Y
C346	★87-018-134-080	CAP, TC-U 0.01-16 Y
C347	★87-018-118-080	CAP, TC-U 82P-50 B
C371	★87-010-260-080	CAP, ELECT 47-25 SME
C372	★87-018-134-080	CAP, TC-U 0.01-16 Y
C373	★87-010-371-080	CAP, ELECT 470-6.3
C374	★87-010-405-080	CAP, ELECT 10-50 SME
C381	★87-018-117-080	CAP, TC-U 68P-50 SL
C382	★87-018-119-080	CAP, TC-U 100P-50 B
C384	★87-018-107-080	CAP, TC-U 18P-50 SL
C385	★87-018-113-080	CAP, TC-U 33P-50 SL
C386	★87-018-125-080	CAP, TC-U 330P-50 B
C387	★87-018-134-080	CAP, TC-U 0.01-16 Y
C388	★87-018-123-080	CAP, TC-U 220P-50 B
C389	★87-018-121-080	CAP, TC-U 150P-50 B
C390	★87-018-134-080	CAP, TC-U 0.01-16 Y
C392	★87-010-263-080	CAP, ELECT 100-10
C393	★87-018-134-080	CAP, TC-U 0.01-16 Y
C401	★87-018-208-080	CAP, TC-U 0.047-50 F
C402	★87-010-405-080	CAP, ELECT 10-50 SME
C403	★87-010-401-080	CAP, ELECT 1-50 SME
C404	★87-010-404-080	CAP, ELECT 4.7-50 SME
C405	★87-010-709-080	CAP, ELECT 0.22-50 BP
C406	★87-018-134-080	CAP, TC-U 0.01-16 Y
C407	★87-018-134-080	CAP, TC-U 0.01-16 Y
C408	★87-018-111-080	CAP, TC-U 27P-50 SL
C409	★87-018-113-080	CAP, TC-U 33P-50 SL
C410	★87-018-101-080	CAP, TC-U 5.6P-50 SL
C411	★87-018-115-080	CAP, TC-U 47P-50 SL
C441	★87-018-119-080	CAP, TC-U 100P-50 B
C442	★87-018-122-080	CAP, TC-U 180P-50 B
C443	★87-018-114-080	CAP, TC-U 39P-50 SL
C445	★87-018-116-080	CAP, TC-U 56P-50 SL

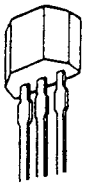
REF. NO.	PART NO.	DESCRIPTION
C511	★87-010-263-080	CAP, ELECT 100-10
C512	★87-018-134-080	CAP, TC-U 0.01-16 Y
C513	★87-018-134-080	CAP, TC-U 0.01-16 Y
C514	★87-010-404-080	CAP, ELECT 4.7-50 SME
C515	★87-010-263-080	CAP, ELECT 100-10
C516	★87-010-403-080	CAP, ELECT 3.3-50 SME
C517	★87-010-403-080	CAP, ELECT 3.3-50 SME
C518	★87-018-134-080	CAP, TC-U 0.01-16 Y
C519	★87-018-121-080	CAP, TC-U 150P-50 B
C531	★87-010-405-080	CAP, ELECT 10-50 SME
C532	★87-010-264-080	CAP, ELECT 100-10 5L
C535	★87-010-263-080	CAP, ELECT 100-10
C536	★87-018-134-080	CAP, TC-U 0.01-16 Y
C537	★87-010-263-080	CAP, ELECT 100-10 (EXCEPT SH)
C538	★87-018-134-080	CAP, TC-U 0.01-16 Y (EXCEPT SH)
C581	★87-018-121-080	CAP, TC-U 150P-50 B
C582	★87-018-121-080	CAP, TC-U 150P-50 B
C583	★87-018-131-080	CAP, TC-U 1000P-50 B
C585	★87-018-134-080	CAP, TC-U 0.01-16 Y
C586	★87-018-208-080	CAP, TC-U 0.047-50 F
C587	★87-010-405-080	CAP, ELECT 10-50 SME
C590	★87-010-263-080	CAP, ELECT 100-10
C591	★87-010-263-080	CAP, ELECT 100-10
C592	★87-018-134-080	CAP, TC-U 0.01-16 Y
C593	★87-018-208-080	CAP, TC-U 0.047-50 F
C601	★87-010-405-080	CAP, ELECT 10-50 SME
C602	★87-018-124-080	CAP, TC-U 270P-50 B
C603	★87-010-382-080	CAP, ELECT 22-25 SME
C604	★87-018-131-080	CAP, TC-U 1000P-50 B
C606	★87-010-405-080	CAP, ELECT 10-50 SME
C607	★87-010-405-080	CAP, ELECT 10-50 SME
C608	★87-015-680-080	CAP, ELECT 47-10 7L
C609	★87-018-199-080	CAP, TC-U 3300P-16 X
C610	★87-010-374-080	CAP, ELECT 47-10
DL301	★80-JUB-676-010	DL, ADL-FE2544W
J301-1	★89-JU7-646-010	JACK, PIN 2-2 (AUDIO OUT)
J301-2	+++	+++ (VIDEO OUT)
L101	★87-003-152-080	COIL, 100UH
L102	★87-006-189-080	COIL, 220UH EL0909
L103	★87-006-189-080	COIL, 220UH EL0909
L301	★87-003-142-080	COIL, 3.3UH LAL02
L302	★87-005-204-080	COIL, 47UH
L303	★87-005-204-080	COIL, 47UH
L304	★87-003-146-080	COIL, 15UH LAL02
L307	★87-003-102-080	COIL, 10UH
L371	★87-005-204-080	COIL, 47UH
L381	★87-003-151-080	COIL, 82UH LAL02
L382	★87-003-145-080	COIL, 8.2UH LAL02
L383	★87-003-147-080	COIL, 22UH
L384	★87-003-288-080	COIL, 180UH LAL02
L385	★87-005-216-080	COIL, 470UH
L386	★87-005-214-080	COIL, 330UH
L391	★87-003-149-080	COIL, 47UH
L401	★87-005-204-080	COIL, 47UH
L402	★87-003-149-080	COIL, 47UH
L403	★87-003-148-080	COIL, 33UH
L441	★87-003-148-080	COIL, 33UH
L511	★87-003-149-080	COIL, 47UH
L512	★87-003-102-080	COIL, 10UH
L532	★87-005-204-080	COIL, 47UH
L581	★87-003-145-080	COIL, 8.2UH LAL02
⚠R120	87-029-361-090	RES, FUSE 3.3-1/2W
⚠R121	87-029-361-090	RES, FUSE 3.3-1/2W
RF371	★82-JUA-633-010	MOD, RF E1659(DH, DHKD)
RF371	★89-JU7-647-010	MOD, RF PAL VHF(SH)
RF371	★89-JU9-617-010	MOD, RF MDLK 6E 764A(DKKE)
RF371	★89-JU9-609-010	MOD, MDLK 6D 573A(SE)
SFR102	★87-024-177-080	SFR220K DIAG V
SFR303	★87-024-434-080	SFR22K RH063EC
X101	★87-030-203-080	CERAMIC RESONATOR KBR4.19MKS
X301	★89-JU7-641-080	XTAL RESONATOR 4.43M
=== FRONT CIRCUIT BOARD SECTION ===		
C801	★87-010-374-080	CAP, ELECT 47-10
D811	87-001-124-080	LED, SLZ-381C-02(REPEAT)
D816	87-001-123-080	LED, SLZ-981C-02(POWER)
RV801	★87-024-516-010	VR, 250KB HFKA08(TRACKING)
SW801	87-036-215-080	SW, TACT EVQ-21404M(POWER)
SW802	87-036-215-080	SW, TACT EVQ-21404M(EJECT)
SW803	87-036-215-080	SW, TACT EVQ-21404M(STOP)
SW804	87-036-215-080	SW, TACT EVQ-21404M(PLAY)
SW805	87-036-215-080	SW, TACT EVQ-21404M(F.FWD)
SW806	87-036-215-080	SW, TACT EVQ-21404M(REW)
SW807	87-036-215-080	SW, TACT EVQ-21404M(REPEAT)
SW808	87-036-215-080	SW, TACT (STILL/NOISE CANCEL)
=== HEAD CIRCUIT BOARD SECTION ===		
C551	★87-018-131-080	CAP, TC-U 1000P-50 B
C552	★87-015-695-080	CAP, ELECT 1-50 7L
C553	★87-018-208-080	CAP, TC-U 0.047-50 F
C554	★87-018-208-080	CAP, TC-U 0.047-50 F
C555	★87-015-695-080	CAP, ELECT 1-50 7L
C556	★87-015-681-080	CAP, ELECT 10-16 7L
C558	★87-018-134-080	CAP, TC-U 0.01-16 Y
C559	★87-015-677-080	CAP, ELECT 100-6.3 7L
C560	★87-018-134-080	CAP, TC-U 0.01-16 Y
C561	★87-018-115-080	CAP, TC-U 47P-50 SL
C569	★87-018-107-080	CAP, TC-U 18P-50 SL
L551	★87-005-208-080	COIL, 100UH
L552	★87-003-149-080	COIL, 47UH
L556	★87-003-147-080	COIL, 22UH
=== POWER CIRCUIT BOARD SECTION ===		
⚠AC901	★87-009-329-010	JACK, AC E CCT9302(AC~)
C901	★87-010-399-090	CAP, ELECT 3300-35 SME
C902	★87-010-121-878	CAP, ELECT 6800-16
C903	★87-010-384-080	CAP, ELECT 100-25 SME
C904	★87-010-405-080	CAP, ELECT 10-50 SME
C905	★87-010-405-080	CAP, ELECT 10-50 SME
C906	★87-010-405-080	CAP, ELECT 10-50 SME
C907	★87-015-469-080	CAP, ELECT 100-16
C908	★87-015-469-080	CAP, ELECT 100-16
⚠F901	87-035-360-010	FUSE, 630MA 250V T E
⚠F902	87-035-363-010	FUSE, 1.25A 250V T E
⚠F903	87-035-363-010	FUSE, 1.25A 250V T E
⚠L901	★87-030-274-010	FILTER, LF-4D-333
⚠PT901	★82-JUA-623-010	POWER TRANSFORMER E (DH, DHKD)
⚠PT901	82-JUA-631-010	POWER TRANSFORMER E (SH, DKKE)
⚠PT901	82-JUA-616-010	POWER TRANSFORMER E (SE)
R901	★87-025-460-080	RES, MF 39K-1/4W ERO
R902	★87-025-459-080	RES, MF 15K-1/4W ERO
R906	★87-025-463-080	RES, MF 56K-1/4W ERO
R907	★87-025-460-080	RES, MF 39K-1/4W ERO
⚠SW901	87-036-211-010	SW, SLIDE (AC VOLTAGE) (SH, DKKE)
=== BASE CIRCUIT BOARD SECTION ===		
PCB-E	★S8-059-133-020	BASE PCB ASSY
CP1	S6-808-080-030	PHOTO (REEL) SENSOR ON1385

REF. NO.	PART NO.	DESCRIPTION
=== RELAY CIRCUIT BOARD-1 SECTION ===		
PCB-F	★S8-059-013-470	RELAY PCB-1 ASSY
=== SWITCH CIRCUIT BOARD SECTION ===		
PCB-G	★S8-059-163-200	SWITCH PCB ASSY (W/SW1, 2, 3)
=== RELAY CIRCUIT BOARD-2 SECTION ===		
=== RELAY CIRCUIT BOARD-3 SECTION ===		
=== RELAY CIRCUIT BOARD-4 SECTION ===		
PCB-J	★S8-059-013-050	RELAY PCB-4 ASSY
=== RELAY CIRCUIT BOARD-5 SECTION ===		

REF. NO.	PART NO.	DESCRIPTION
=== AC HEAD CIRCUIT BOARD SECTION ===		
ACH	S6-204-150-080	AC HEAD HV224206 (W/PCB-L)
=== END SENSOR CIRCUIT BOARD SECTION ===		
	★S8-059-163-010	SENSOR PCB LM ASSY (W/PCB-M)
=== START SENSOR CIRCUIT BOARD SECTION ===		
	★S8-059-163-010	SENSOR PCB RM ASSY (W/PCB-N)
=== LED CIRCUIT BOARD SECTION ===		
LED1	★S8-059-133-030	LED ASSY (W/PCB-O)
=== MISCELLANEOUS ===		
	S8-059-010-160	UPPER DRUM (W/VIDEO HEAD)
	★S8-059-013-040	LOWER DRUM ASSY
M1	S6-004-030-240	CYLINDER MOTOR TM85
M2	S8-059-073-020	CAPSTAN MOTOR ASSY
M3	S0-059-113-010	LOADING MOTOR ASSY

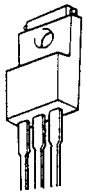
TRANSISTOR ILLUSTRATION

2SA933
2SC1740



DTA115
DTA144
DTC144
DTC343

2SC2458



2SD1406

PRACTICAL SERVICE FIGURE

Output level

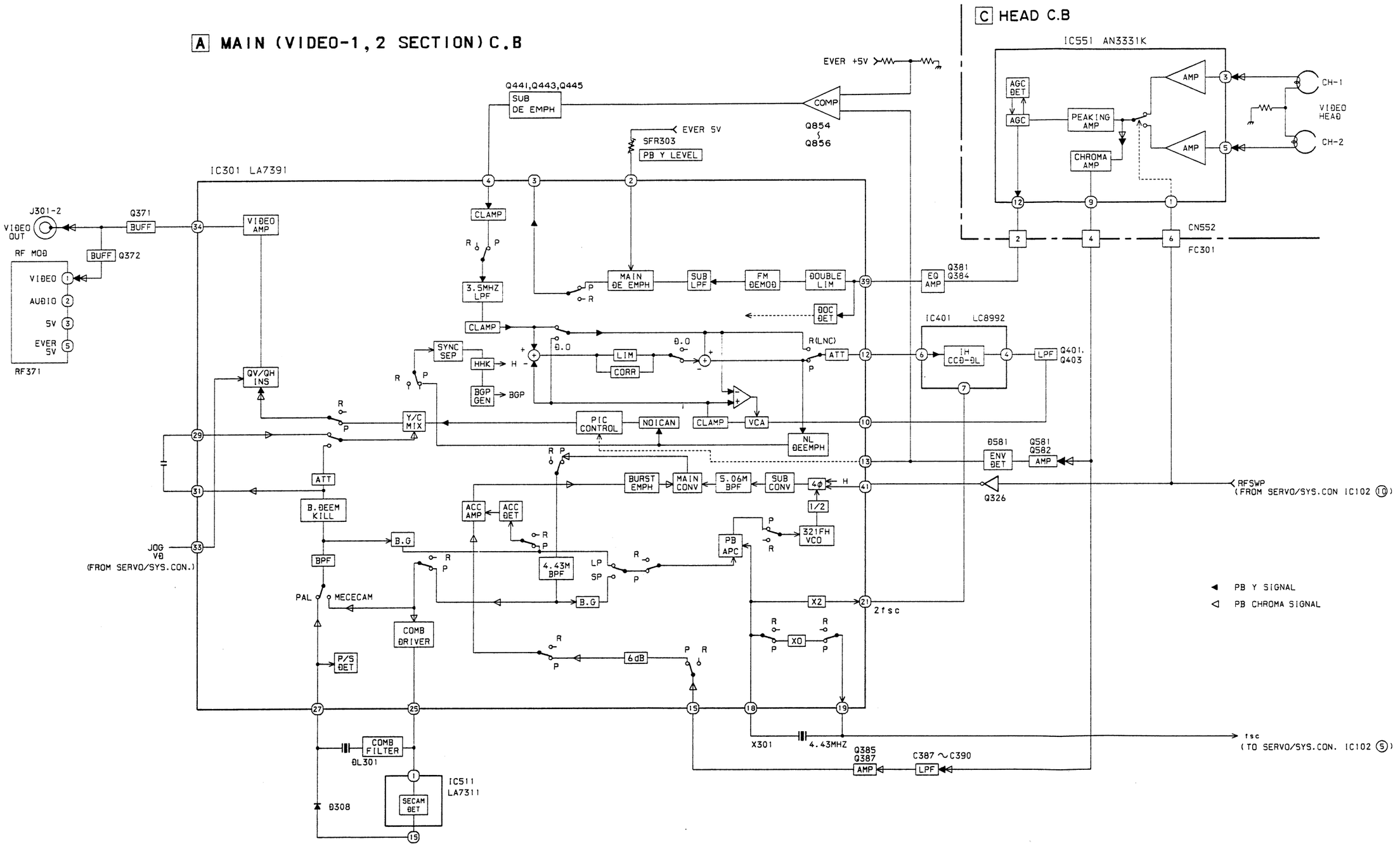
Video (Impedance)	: 1.0 ± 0.2Vp − p (75 Ω ± 20 %, Unbalance)
Audio (Impedance)	: − 8 ± 3dB (Less than 3.3k Ω)
RF Modulated (Impedance)	: 75 ± 3dB μ V (75 Ω, Unbalance)

HV − E212SE, E1010SE (UHF, 32CH~40CH)
HV − E212SH (VHF, 3CH~4CH)
HV − E275DKKE, E1010DH (UHF, 30CH~39CH)

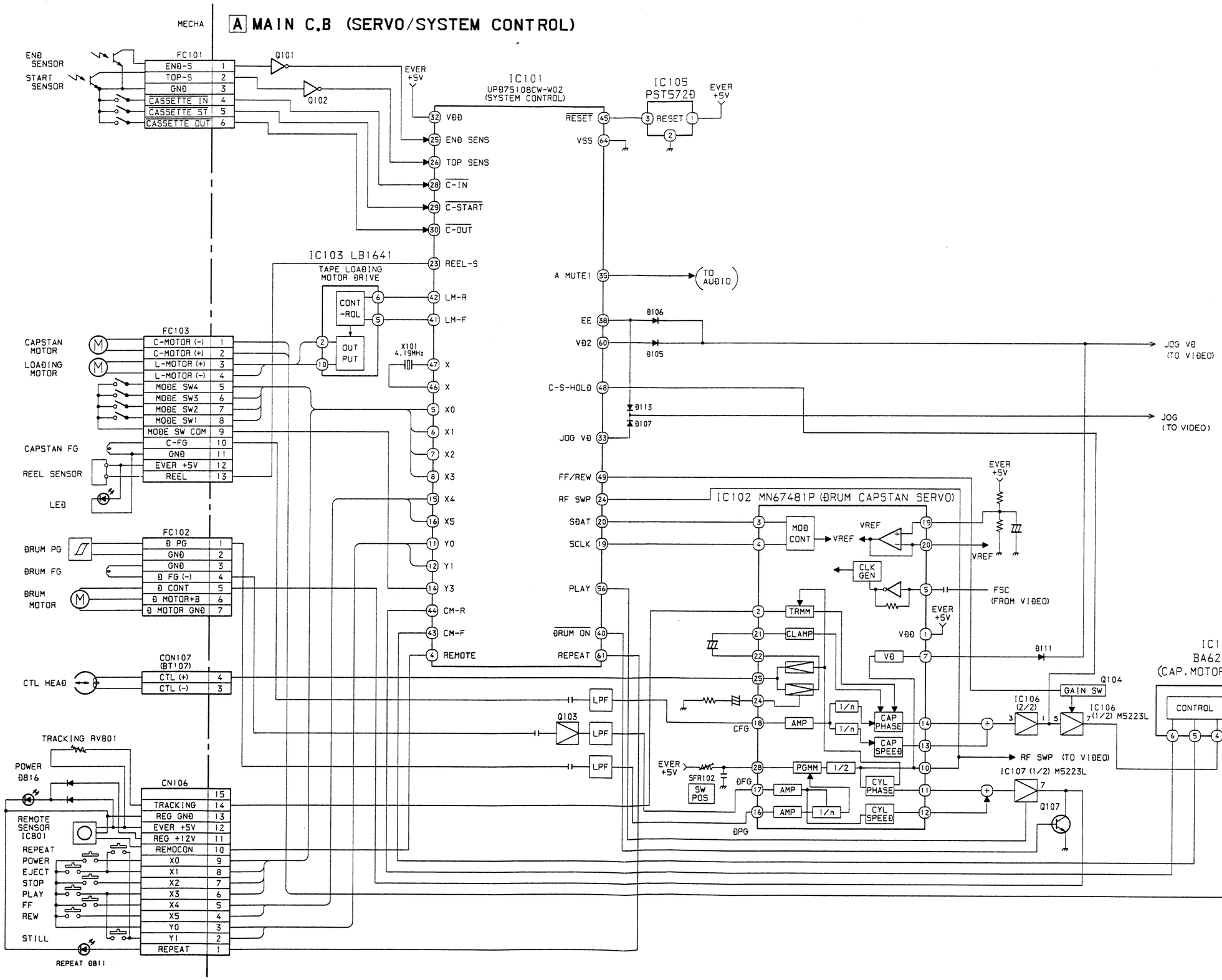
S/N Ratio

Video (SP mode)	: More than 42dB (Y − signal) : More than 38dB (C − signal, AM) : More than 36dB (C − signal, PM)
Audio (SP mode)	: More than 40dB
Audio Frequency Response	
(SP mode)	: 200Hz~8kHz
Horizontal Resolution	: More than 230lines
Tape Speed (SP mode)	: 23.39mm/sec ± 0.5 %
Wow & Flutter	: Less than 0.4 %
F.F Time	: Less than 300sec (E − 240)
REW Time	: Less than 300sec (E − 240)
Back Tension	: 37.5~57g-cm
Loading Time	: Less than 3sec
Unloading Time	: Less than 3.5sec
Test Tape	: MVP − 08 (PB) MVP − 09 (PB) TPV − 160S TTV − 06T TTV − P5 E − 240 (or HS − T120)

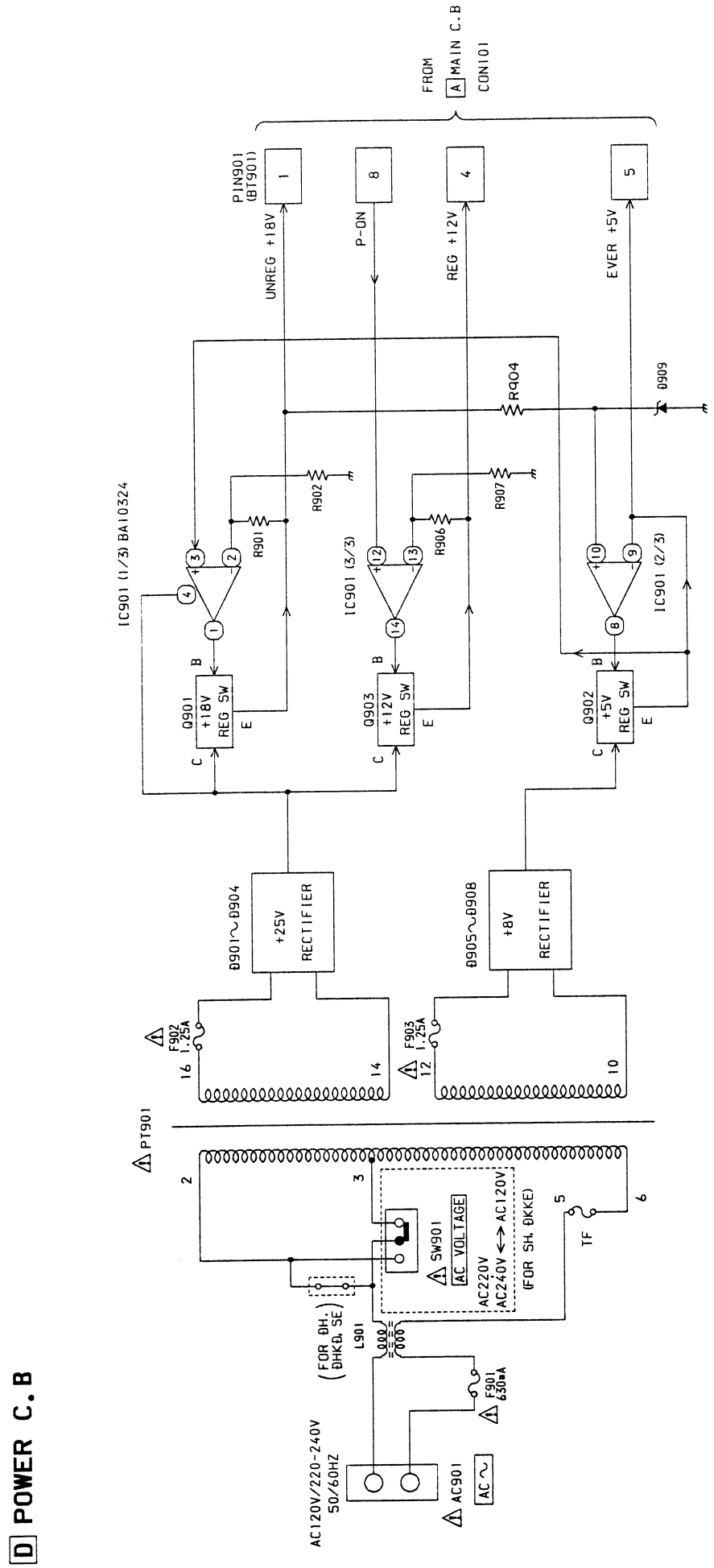
BLOCK DIAGRAM – 1 (VIDEO SECTION)



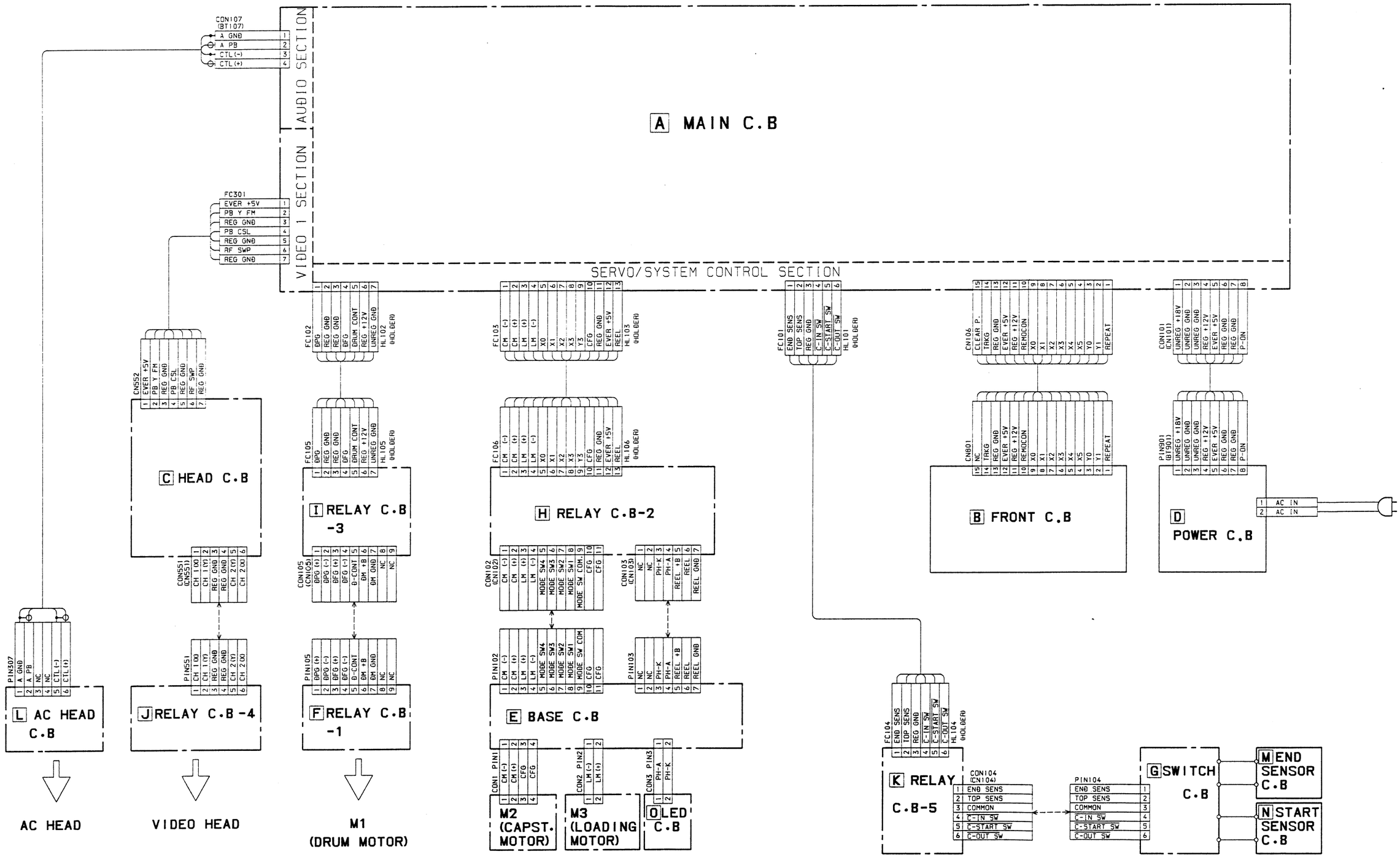
BLOCK DIAGRAM – 2 (SERVO/SYSTEM CONTROL SECTION)



BLOCK DIAGRAM – 3 (POWER UNIT SECTION)



WIRE HARNESS DIAGRAM

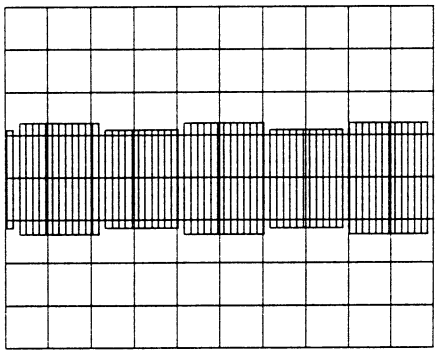


WAVE FORM – 1 (VIDEO SECTION)

Y-PROCESS WAVE FORM

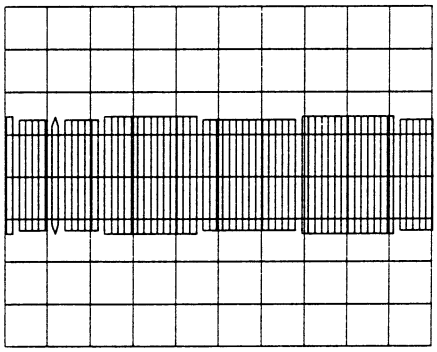
Y FM SIGNAL Tape used : TTV-P1
Between R381 and ② pin of FC301
100mV/DIV 5msec/DIV

⑧



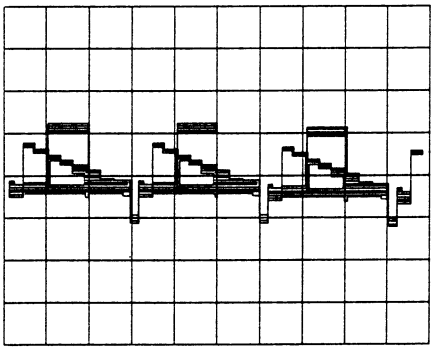
PB Y FM SIGNAL
Between IC301 ㊴ pin
200mV/DIV 5msec/DIV

⑨



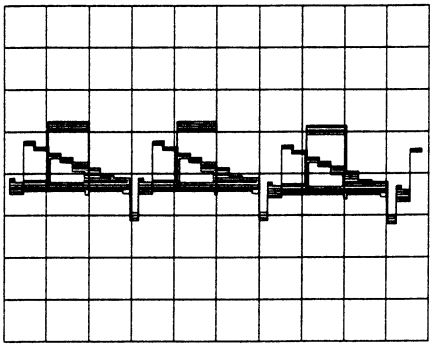
PB Y LEVEL
IC301 ③ pin
200mV/DIV 20 μ sec/DIV

⑩



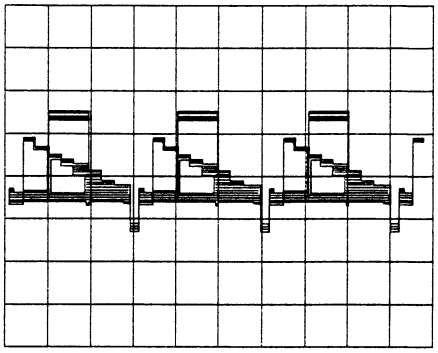
Y SIGNAL (DEMODULATION LEVEL)
IC301 ④ pin
200mV/DIV 20 μ sec/DIV

⑪



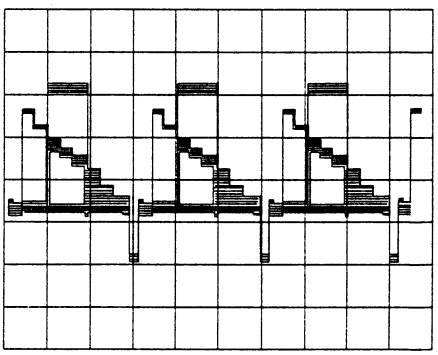
PB Y SIGNAL LEVEL
IC301 ⑫ pin
100mV/DIV 20 μ sec/DIV

⑫



PB Y SIGNAL LEVEL (After CCD)
IC301 ⑩ pin
100mV/DIV 20 μ sec/DIV

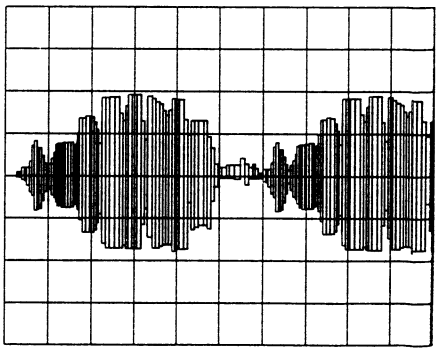
⑬



CHROMA-PROCESS WAVE FORM

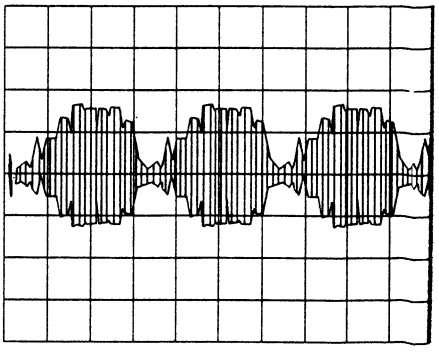
PB CHROMA SIGNAL
IC301 ⑮ pin
50mV/DIV 10 μ sec/DIV

⑭

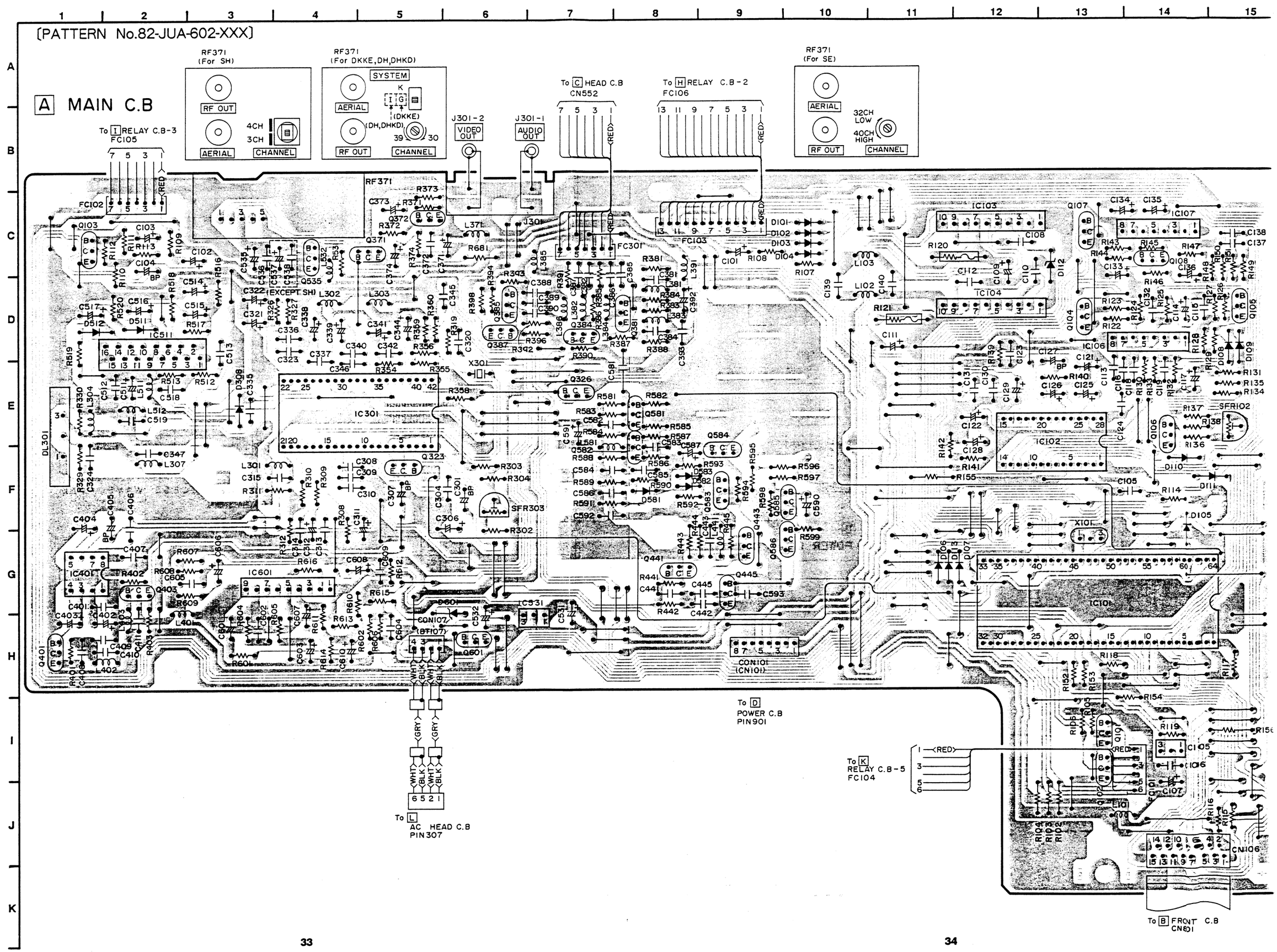


PB CHROMA SIGNAL
IC301 ㉕ pin
500mV/DIV 20 μ sec/DIV

⑮

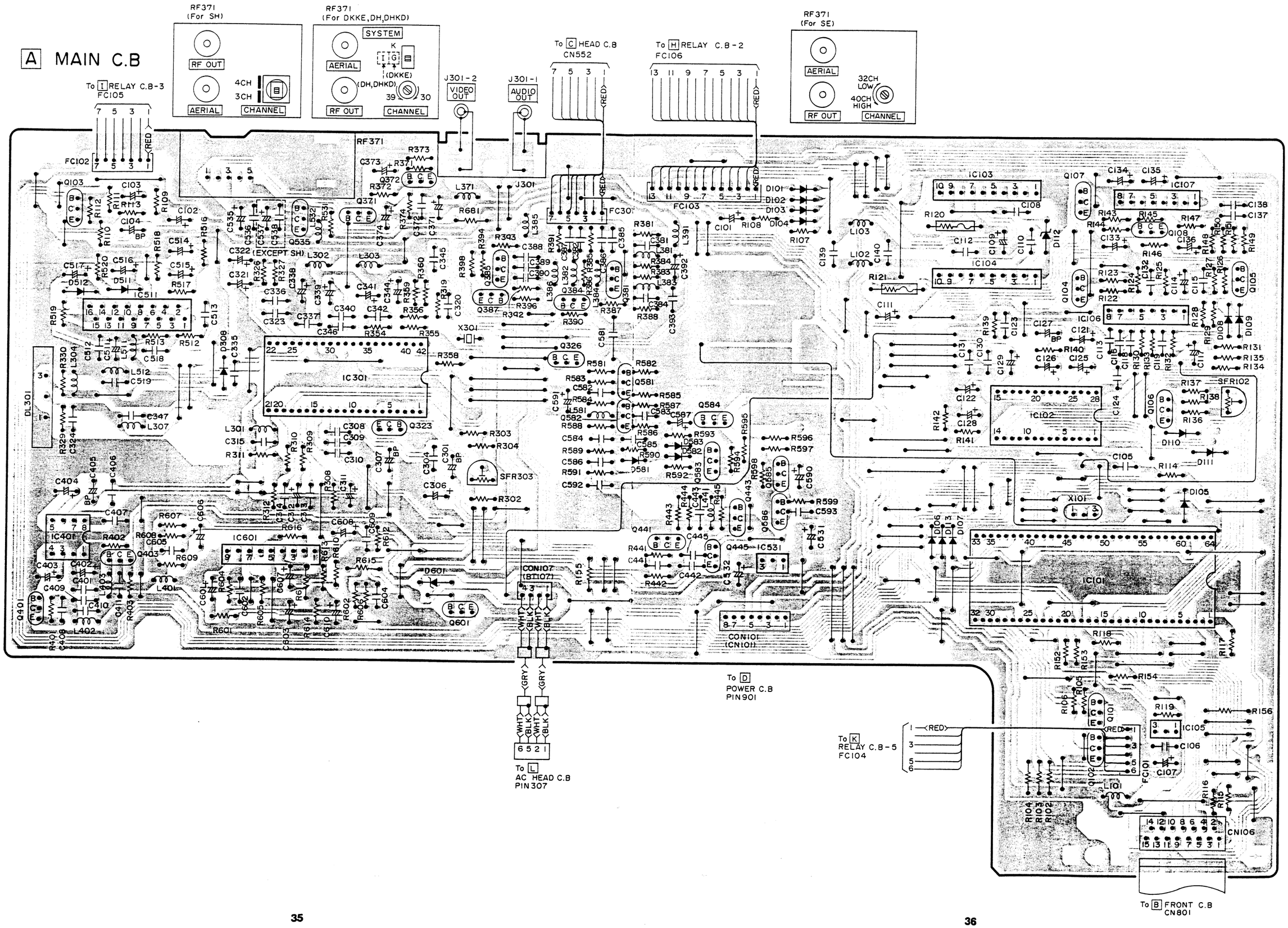


[PATTERN No.82-JUA-602-XXX]



[PATTERN No.82-JUA-636-XXX]

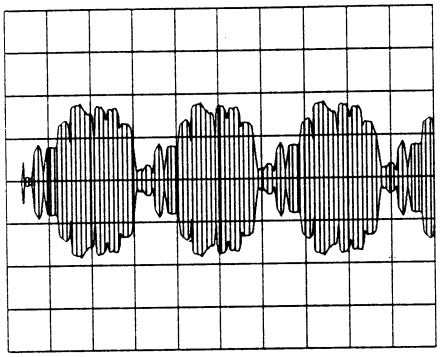
A MAIN C.B



WAVE FORM – 2 (VIDEO SECTION)

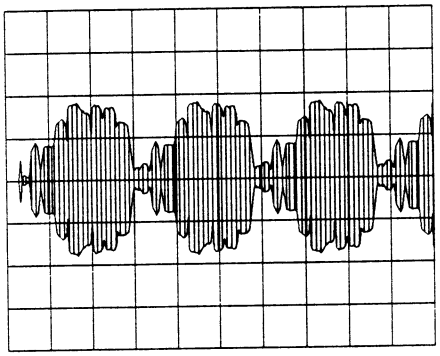
PB CHROMA SIGNAL
IC301 (27) pin
50mV/DIV 20 μ sec/DIV

(16)



PB CHROMA SIGNAL
IC301 (29) pin
200mV/DIV 20 μ sec/DIV

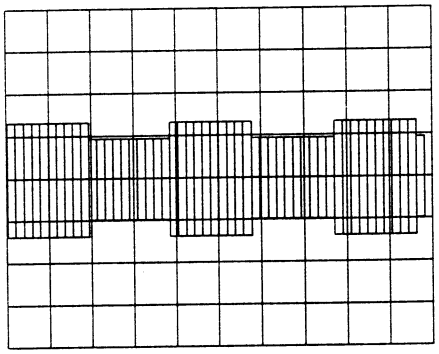
(17)



Y+C–PROCESS WAVE FORM

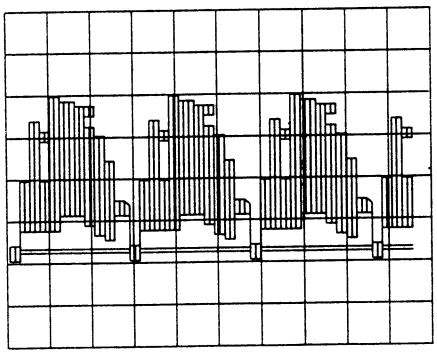
PB RF SIGNAL
Between C387 and ④ pin of FC301
100mV/DIV 5msec/DIV

(18)



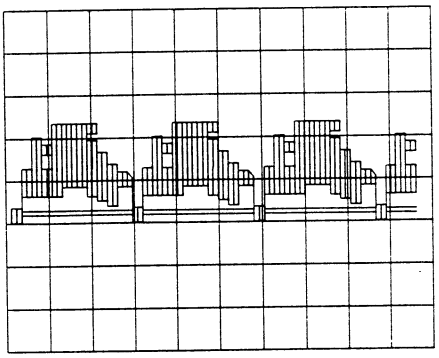
PB VIDEO SIGNAL
IC301 (34) pin
500mV/DIV 20 μ sec/DIV

(19)



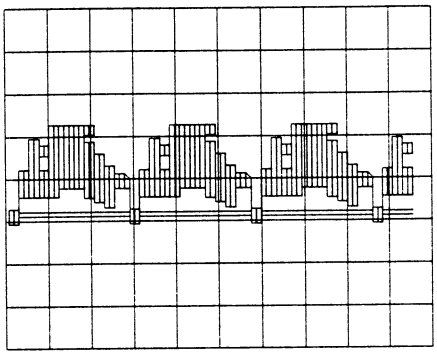
VIDEO OUT Jack (terminate with 75ohm)
500mV/DIV 20 μ sec/DIV

(20)

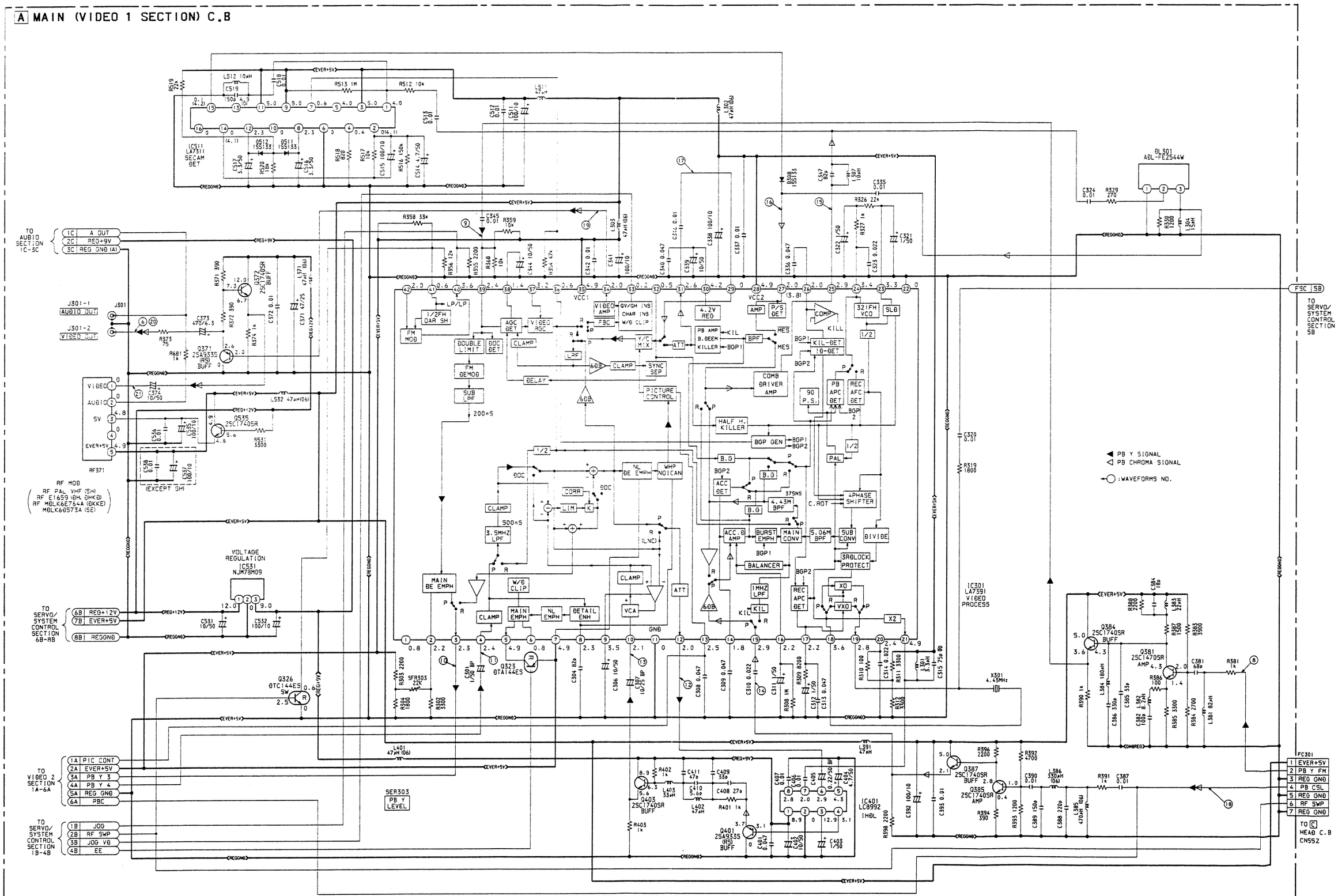


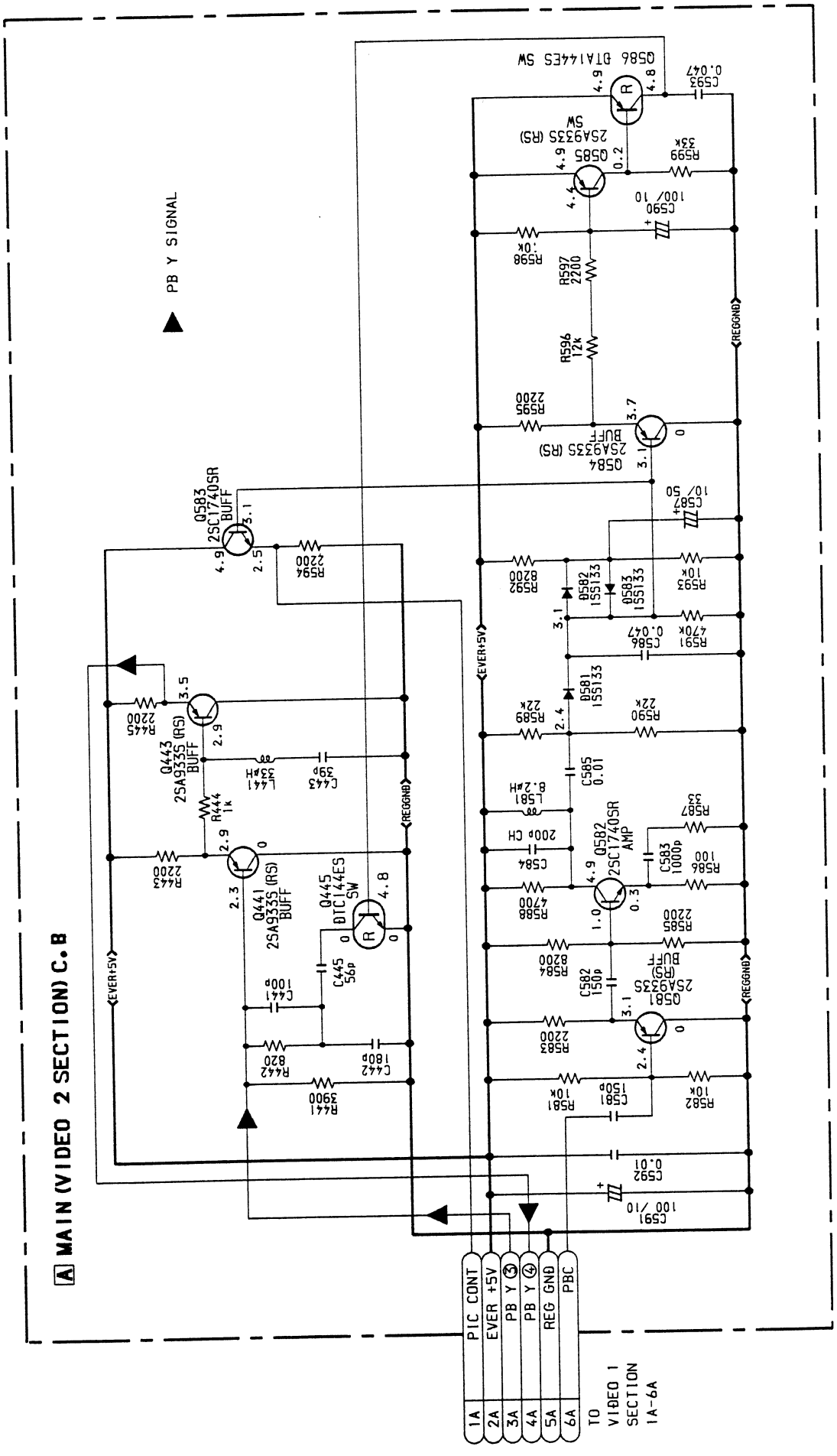
PB VIDEO FOR RF OUT
RF371 ① pin
500mV/DIV 20 μ sec/DIV

(21)

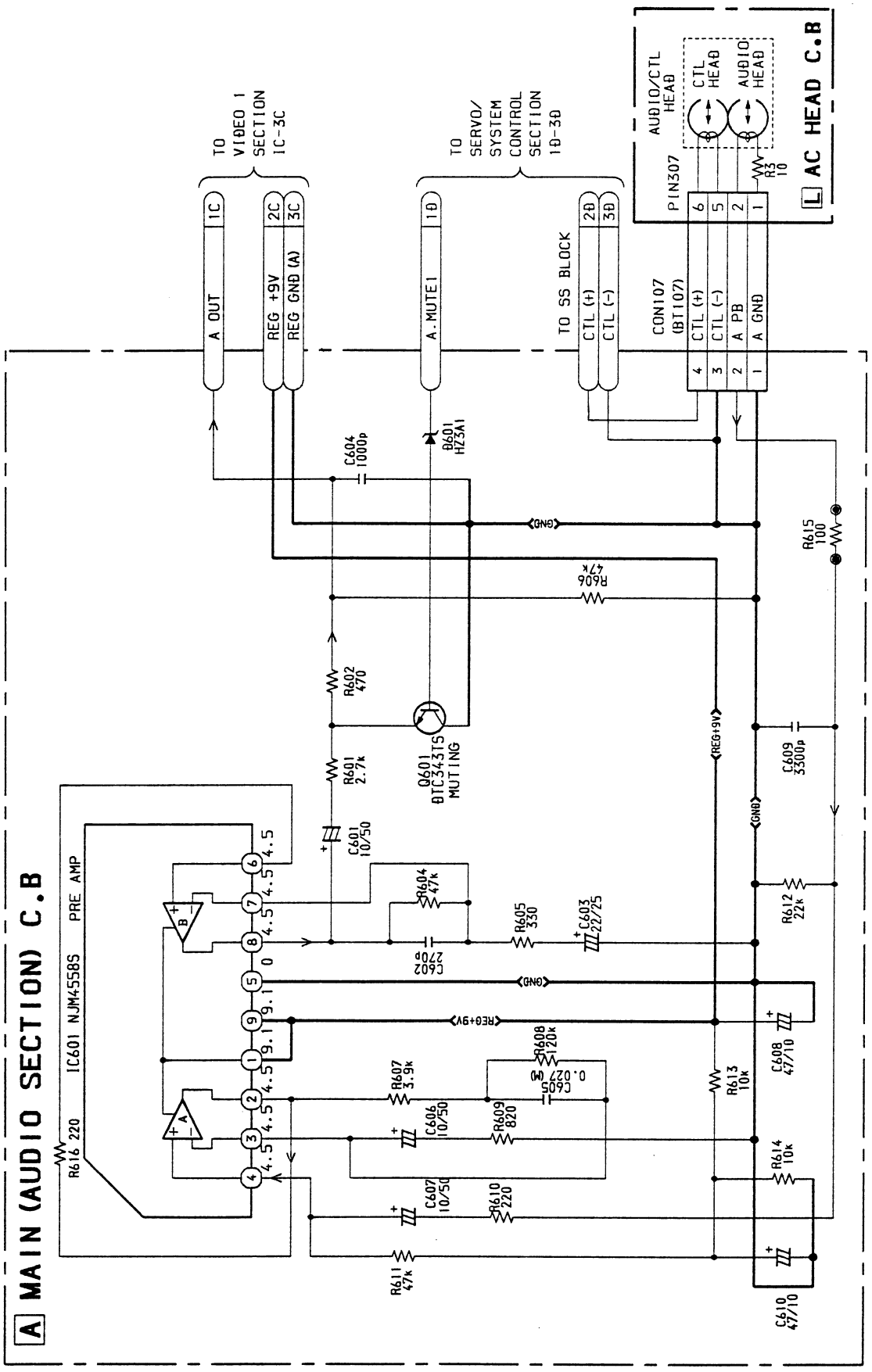


A MAIN (VIDEO 1 SECTION) C.B

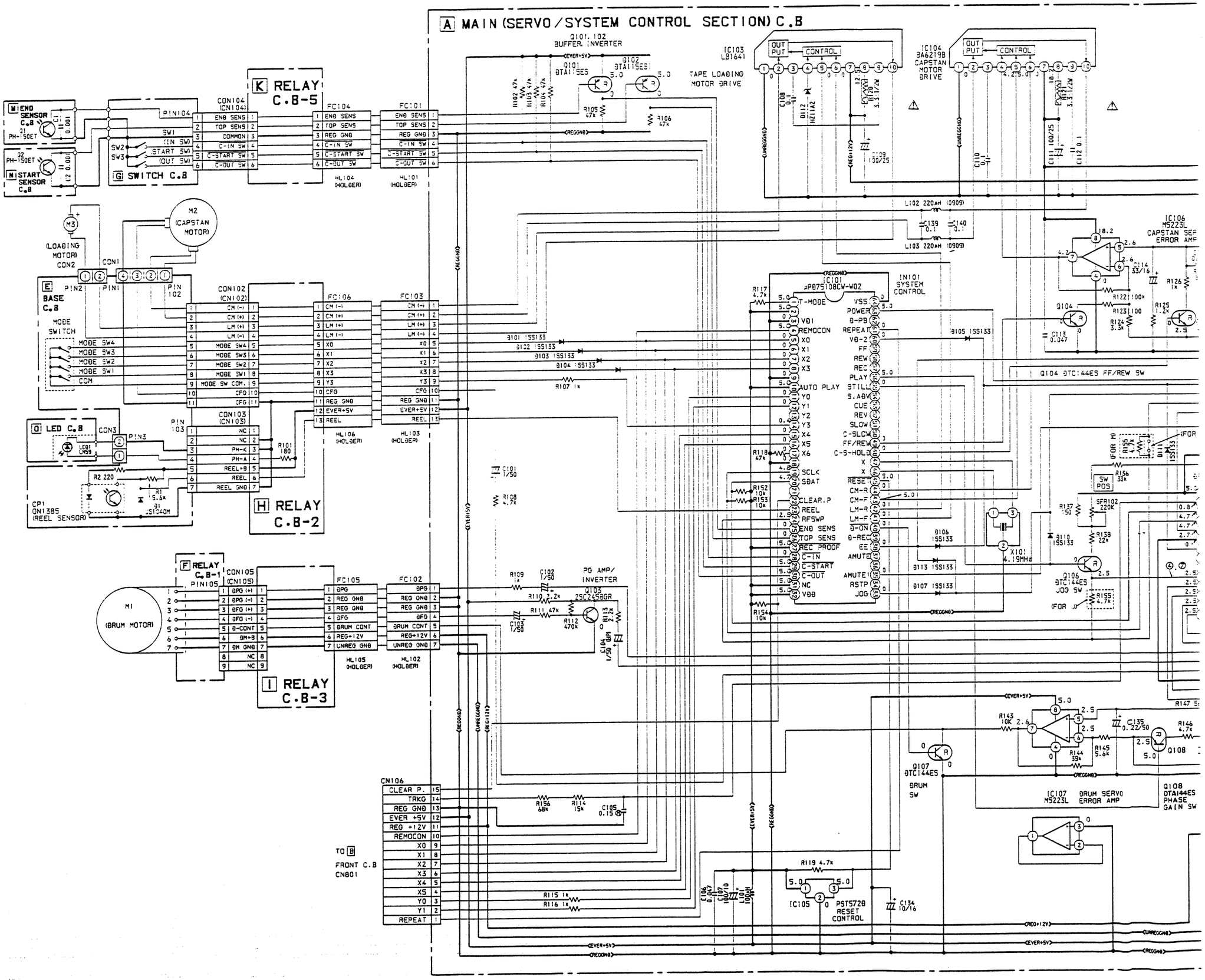



A MAIN (VIDEO 2 SECTION) C.B
PB Y SIGNAL
Q586 DTA144ES SW
Q585 2SA933S (RS) SW
Q584 2SA933S (RS) BUFF
Q583 2SC1740SR BUFF
Q582 2SC1740SR AMP
Q581 2SA933S (RS) BUFF
Q443 2SA933S (RS) BUFF
Q441 2SA933S (RS) BUFF
Q445 DTC144ES SW
D581 1SS133
D582 1SS133
D583 1SS133
R599 33k
R598 1.0k
R597 2200
R596 12k
R595 2200
R594 2200
R593 10k
R592 8200
R591 470k
R590 22k
R589 22k
R588 4700
R587 33
R586 100
R585 2200
R584 8200
R583 2200
R582 10k
R581 10k
R445 2200
R444 1k
R443 2200
R442 820
R441 3900
C593 0.047
C590 100/ 10
C587 10/ 50
C586 0.047
C585 0.01
C584 200p CH
C583 1000p
C582 150p
C581 150p
C592 0.01
C591 100/ 10
C445 56p
C443 39p
C442 180p
C441 100p
L581 8.2μH
L441 33μH
EVER+5V
REGGND
PIC CONT
EVER +5V
PB Y ③
PB Y ④
REG GND
PBC
1A
2A
3A
4A
5A
6A
TO VIDEO 1 SECTION 1A-6A

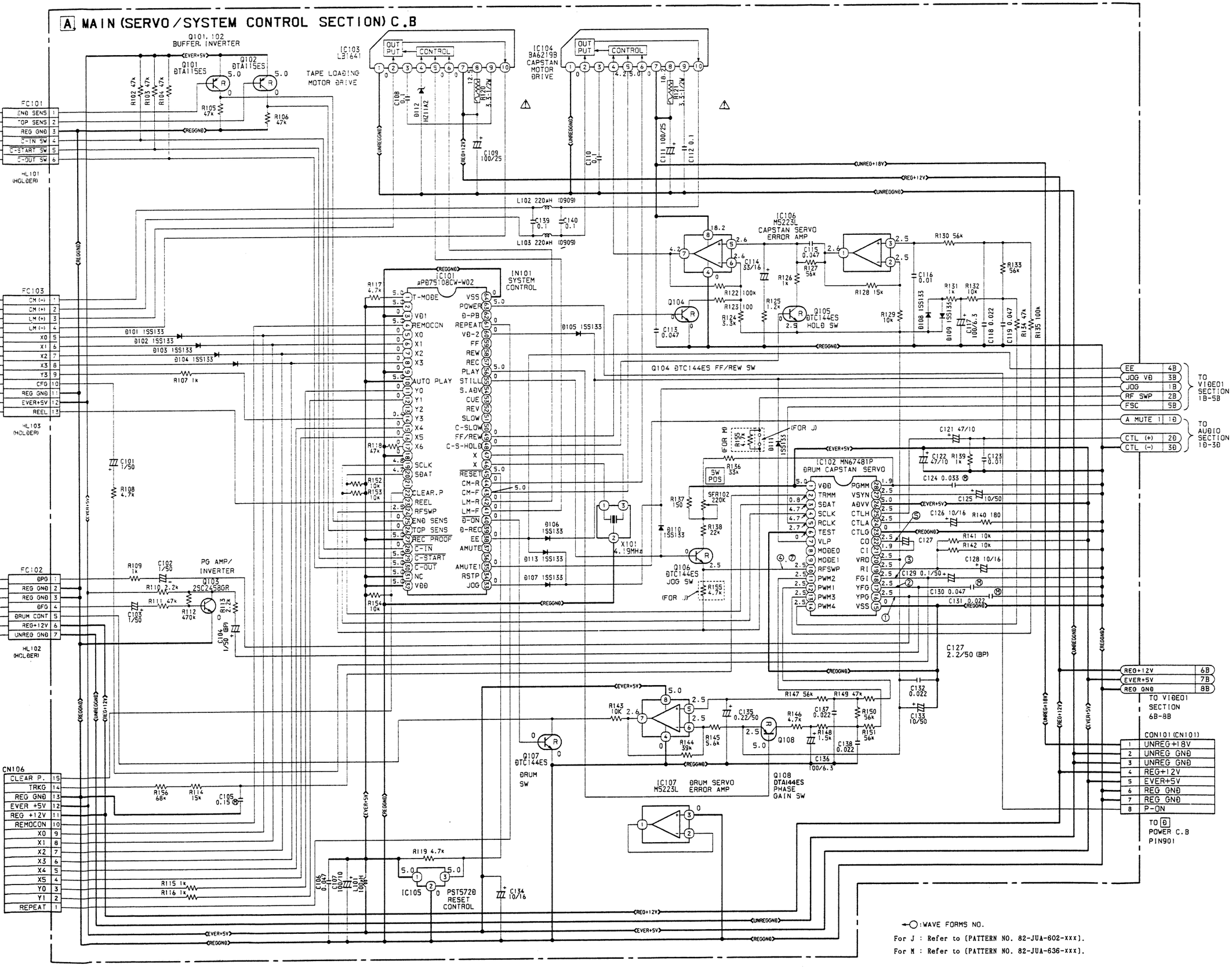
SCHEMATIC DIAGRAM – 3 (AUDIO SECTION)

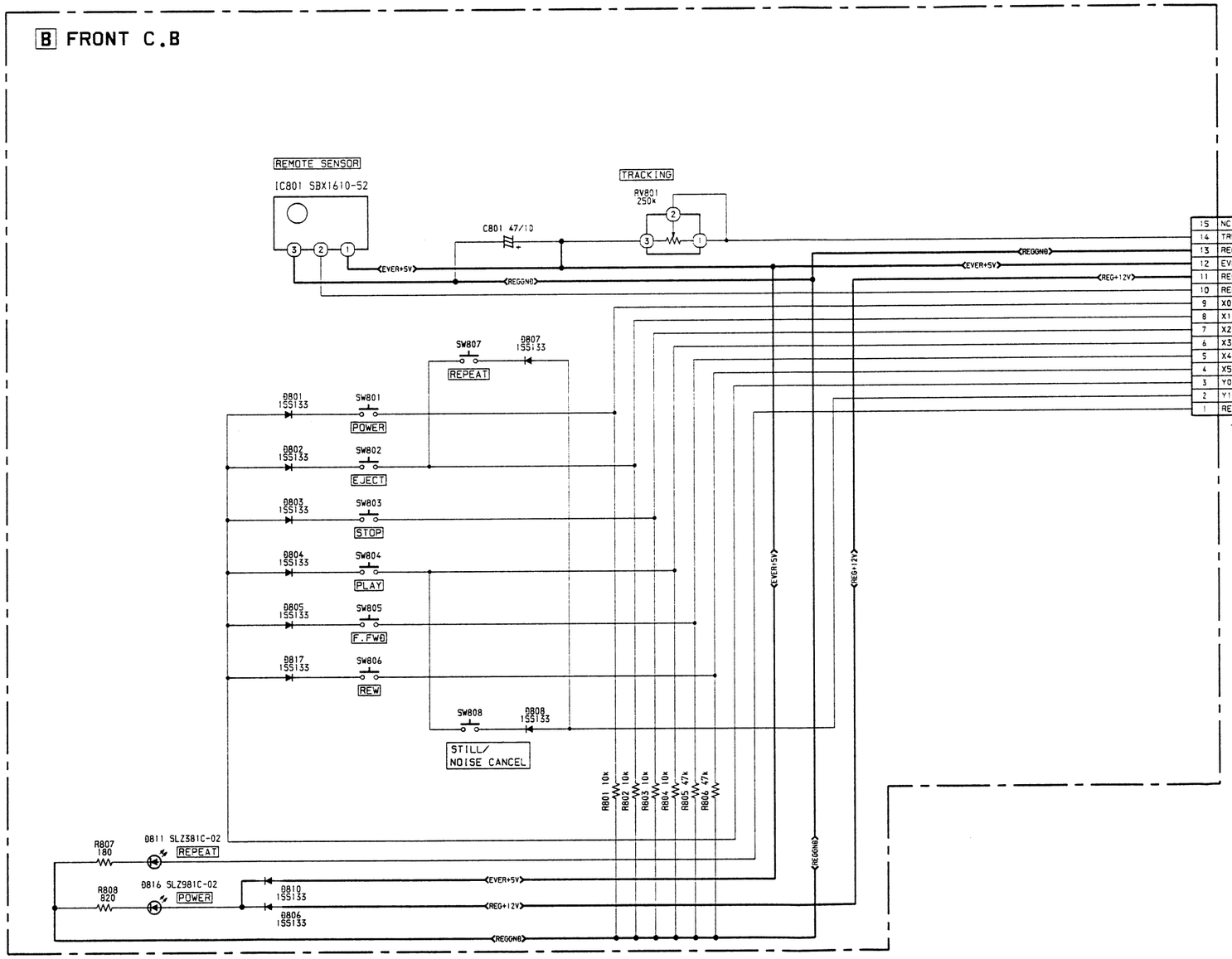


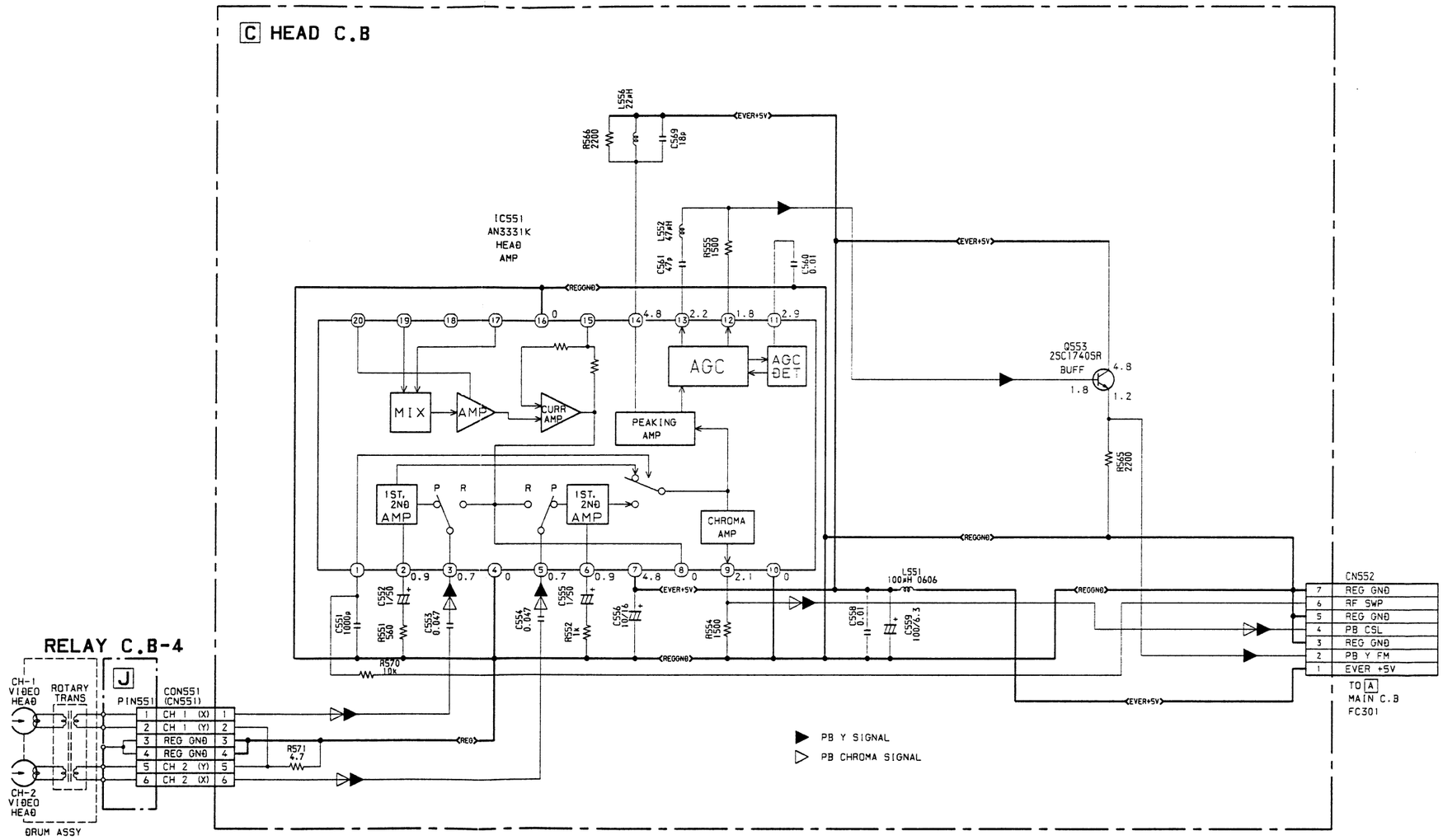
SCHEMATIC DIAGRAM – 4 (SERVO/SYSTEM CONTROL SECTION)

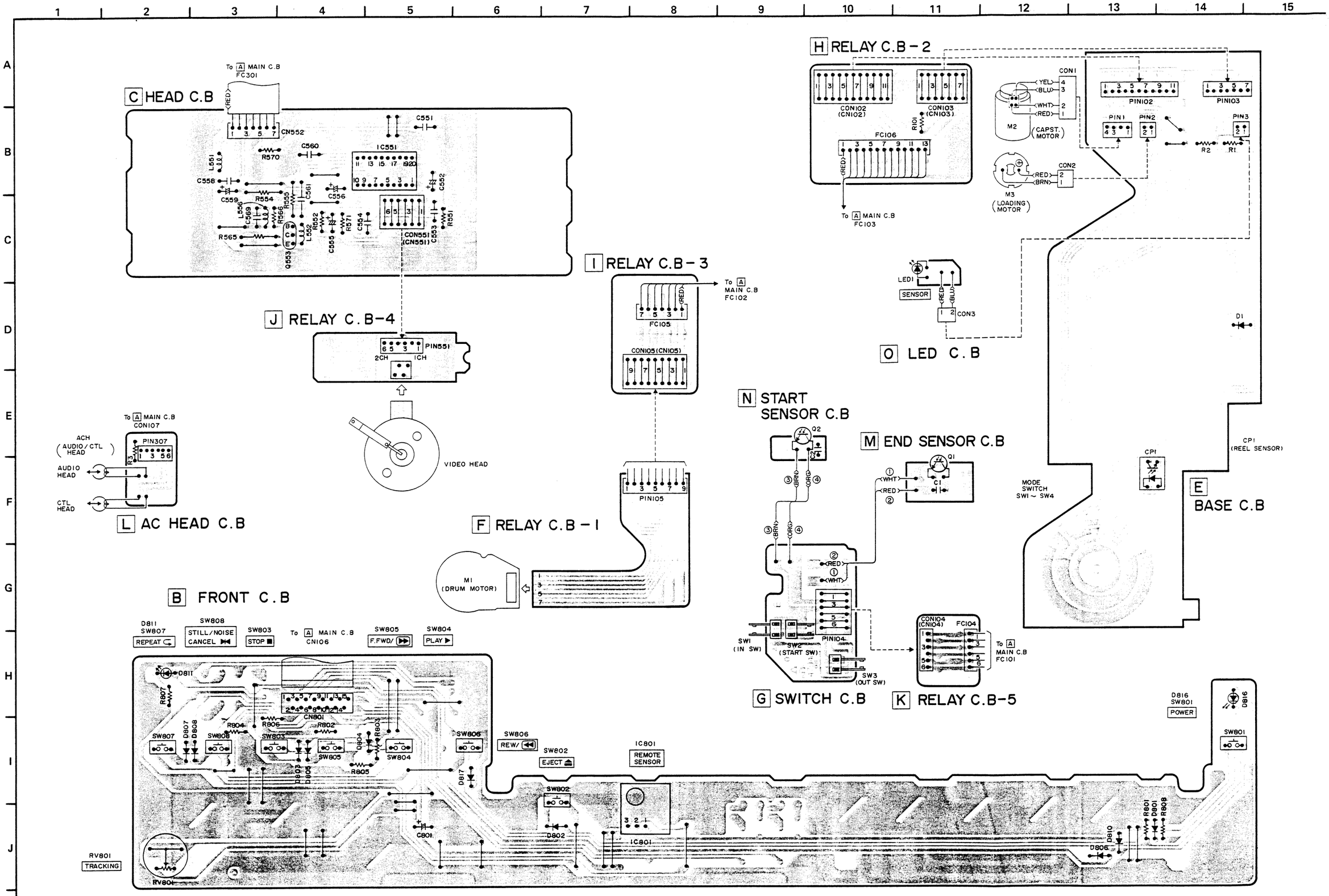


A MAIN (SERVO / SYSTEM CONTROL SECTION) C.B

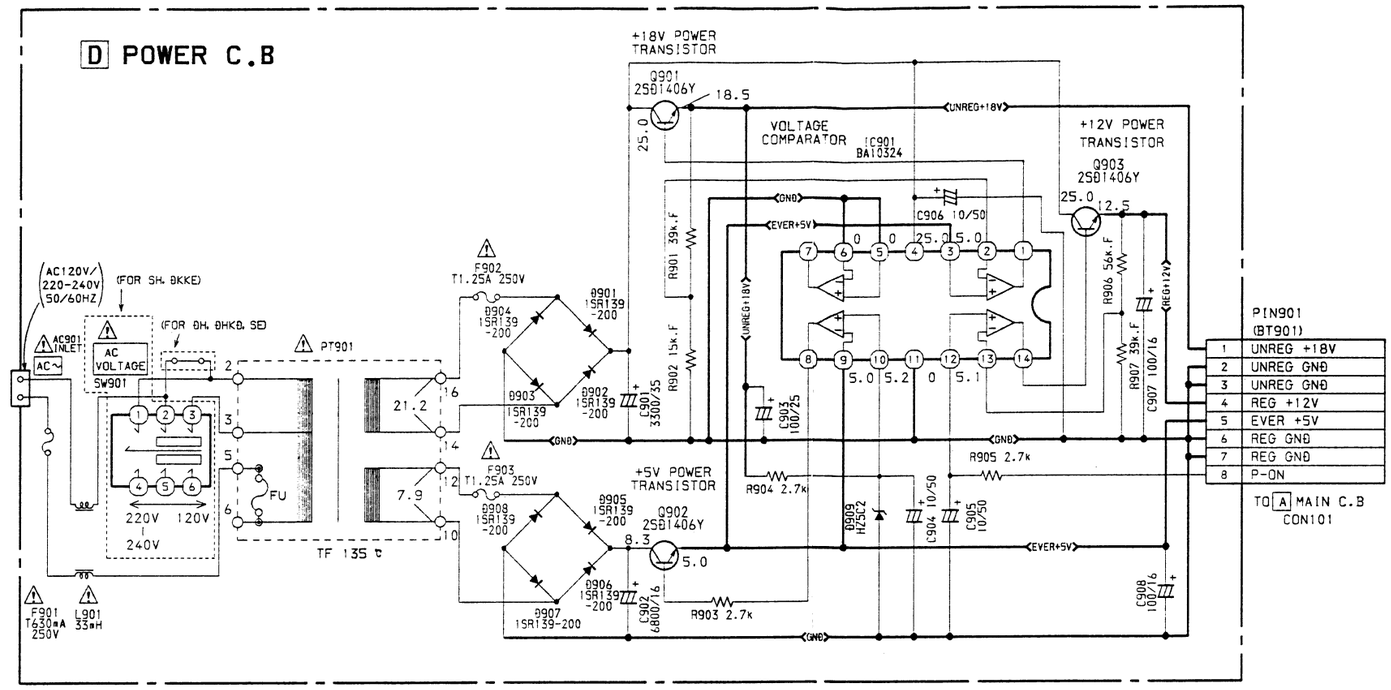



B FRONT C.B
REMOTE SENSOR
IC801 SBX1610-52
C801 47/10
TRACKING
RV801 250k
CN801
15 NC
14 TRKG
13 REG GND
12 EVER +5V
11 REG +12V
10 REMOCOM
9 X0
8 X1
7 X2
6 X3
5 X4
4 X5
3 Y0
2 Y1
1 REPEAT
TO A MAIN C.B CN106
<EVER+5V>
<REGGND>
<REG+12V>
SW807
D807 1SS133
REPEAT
D801 1SS133
SW801
POWER
D802 1SS133
SW802
EJECT
D803 1SS133
SW803
STOP
D804 1SS133
SW804
PLAY
D805 1SS133
SW805
F.FWD
D817 1SS133
SW806
REW
SW808
D808 1SS133
STILL/ NOISE CANCEL
R801 10k
R802 10k
R803 10k
R804 10k
R805 47k
R806 47k
R807 180
D811 SLZ381C-02
REPEAT
R808 820
D816 SLZ981C-02
POWER
D810 1SS133
D804 1SS133


C HEAD C.B
IC551
AN3331K
HEAD
AMP
L556 22μH
R546 2200
C569 18p
<EVER+5V>
L552 47μH
R555 1500
C561 47p
C560 0.01
<REGGND>
20 19 18 17 16 0 15 14 4.8 13 2.2 12 1.8 11 2.9
MIX
AMP
CURR AMP
AGC
AGC DET
PEAKING AMP
1ST. 2ND AMP
P R
R P
1ST. 2ND AMP
CHROMA AMP
1 2 0.9 3 0.7 4 0 5 0.7 6 0.9 7 4.8 8 0 9 2.1 10 0
C552 1/50
C553 0.047
C554 0.047
C555 1/50
C556 10/16
R551 560
R552 1k
R554 1500
R570 10k
C551 1000p
Q553
2SC1740SR
BUFF
4.8
1.8
1.2
R545 2200
L551
100μH 0606
C558 0.01
C559 100/6.3
CN552
7 REG GND
6 RF SWP
5 REG GND
4 PB CSL
3 REG GND
2 PB Y FM
1 EVER +5V
TO A MAIN C.B FC301
RELAY C.B-4
J
PIN551
CON551 (CN551)
1 CH 1 (X) 1
2 CH 1 (Y) 2
3 REG GND 3
4 REG GND 4
5 CH 2 (Y) 5
6 CH 2 (X) 6
R571 4.7
<REG>
CH-1 VIDEO HEAD
ROTARY TRANS
CH-2 VIDEO HEAD
DRUM ASSY
PB Y SIGNAL
PB CHROMA SIGNAL

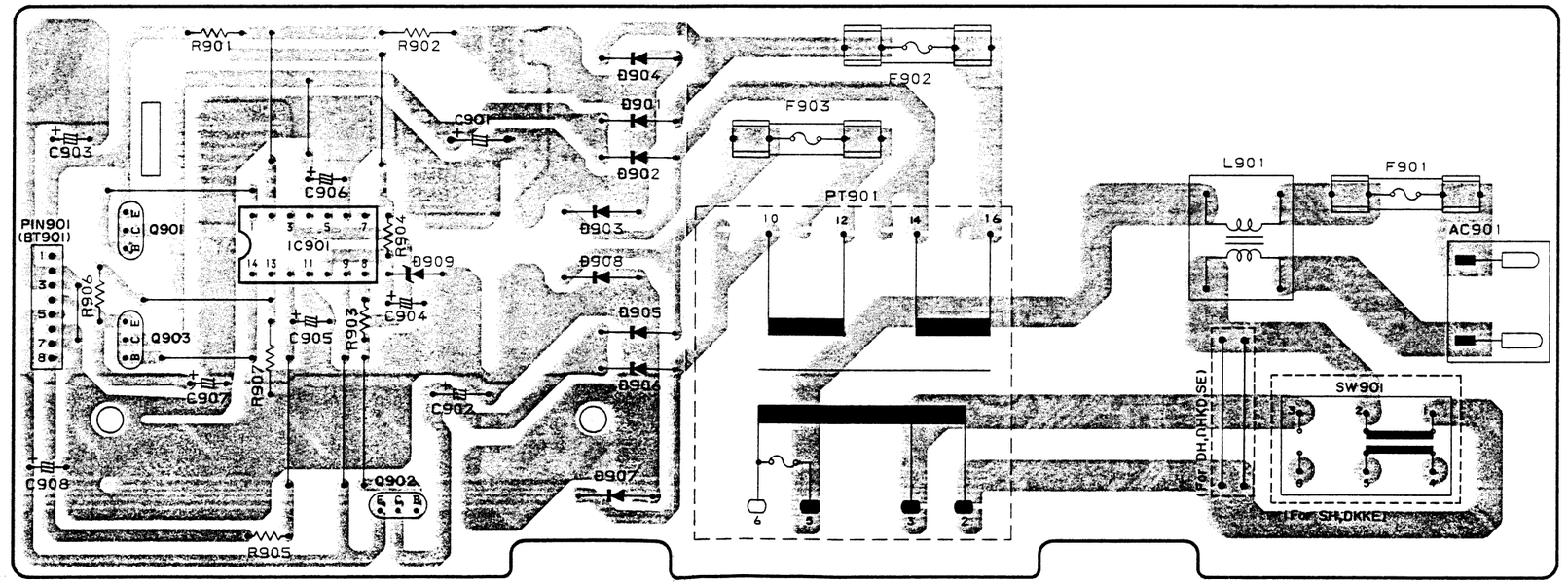

C HEAD C.B
To A MAIN C.B FC301
CN552
IC551
C551
C560
R570
C558
C559
C561
C556
R554
R555
R565
C555
R571
C554
C552
R551
C553
CON551 (CN551)
J RELAY C.B-4
PIN551
2CH
1CH
VIDEO HEAD
I RELAY C.B-3
To A MAIN C.B FC102
FC105
CON105 (CN105)
PIN105
F RELAY C.B-1
M1 (DRUM MOTOR)
H RELAY C.B-2
CON102 (CN102)
CON103 (CN103)
FC106
R101
To A MAIN C.B FC103
CON1
M2 (CAPST. MOTOR)
PIN102
PIN103
PIN1
PIN2
PIN3
R2
R1
CON2
M3 (LOADING MOTOR)
LED1
SENSOR
CON3
O LED C.B
D1
CP1 (REEL SENSOR)
CP1
E BASE C.B
MODE SWITCH SW1 ~ SW4
N START SENSOR C.B
Q2
Q1
C1
M END SENSOR C.B
SW1 (IN SW)
SW2 (START SW)
SW3 (OUT SW)
PIN104
CON104 (CN104)
FC104
To A MAIN C.B FC101
G SWITCH C.B
K RELAY C.B-5
L AC HEAD C.B
To A MAIN C.B CON107
ACH (AUDIO / CTL HEAD)
PIN307
AUDIO HEAD
CTL HEAD
B FRONT C.B
D811
SW807
REPEAT
SW808
STILL / NOISE CANCEL
SW803
STOP
To A MAIN C.B CN106
SW805
F.FWD/
SW804
PLAY
CN801
SW806
REW/
SW802
EJECT
IC801
REMOTE SENSOR
D816
SW801
POWER
RV801
TRACKING
C801
D802
D806
D810
D817

SCHEMATIC DIAGRAM – 7 (POWER SECTION)

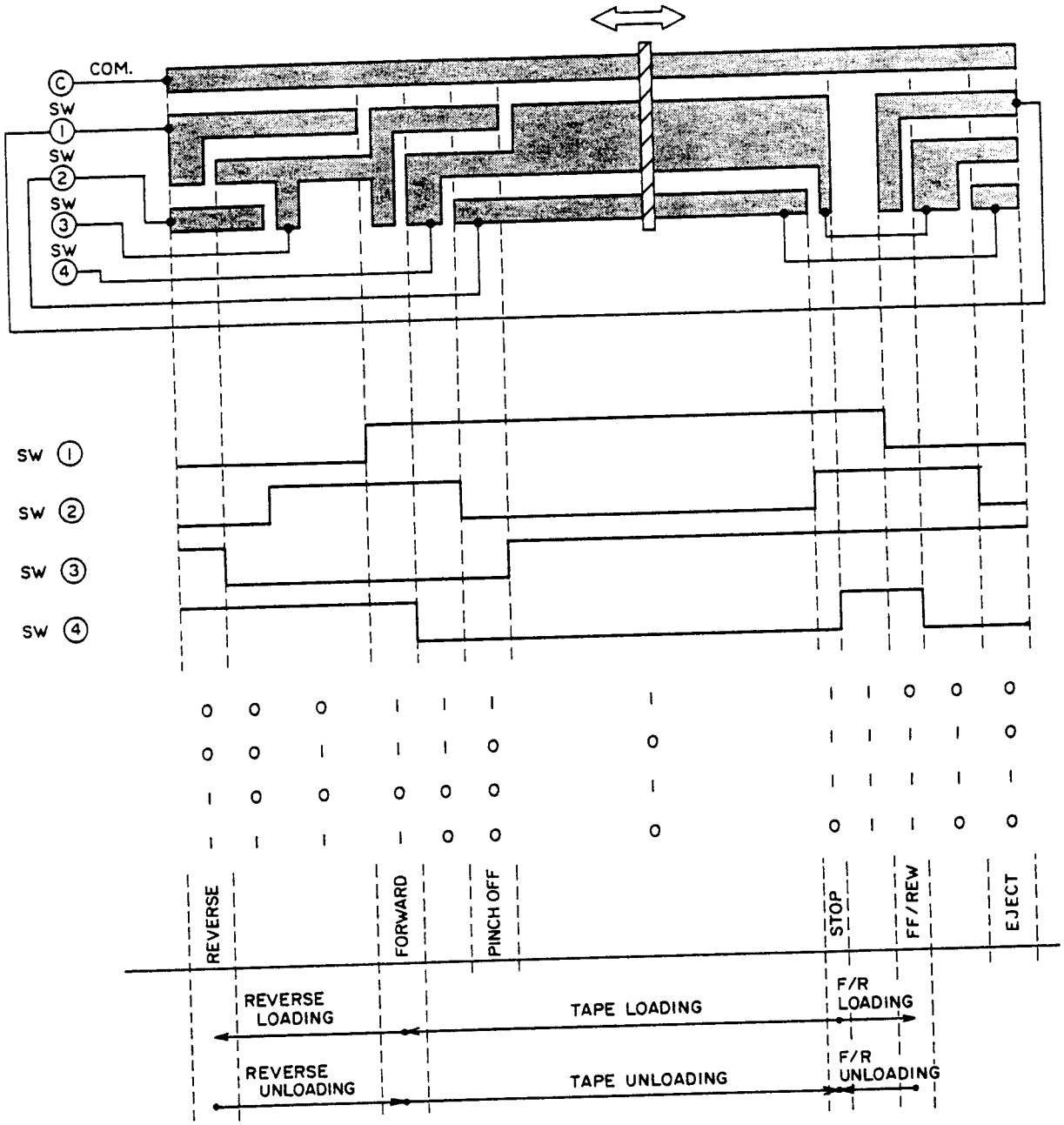


WIRING – 3 (POWER SECTION)

D POWER C.B



SYSTEM SWITCH MODE

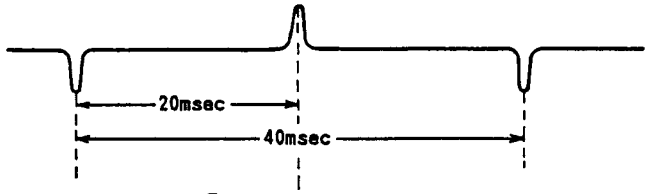


SWITCH				Position
SW1	SW2	SW3	SW4	
0	0	1	0	Front loading, Eject
0	1	1	0	Intermediate
0	1	1	1	F.F, REW
1	1	1	1	Intermediate
1	1	1	0	Stop
1	0	1	0	Tape loading
1	0	0	0	Gear change
1	1	0	0	Intermediate
1	1	0	1	Play (Pause)
0	1	0	1	Intermediate
0	0	0	1	Intermediate
0	0	1	1	Reset

DRUM SERVO SYSTEM TIMING CHART

<During P.B>

*DRUM PG (IC102 ⑯ pin)

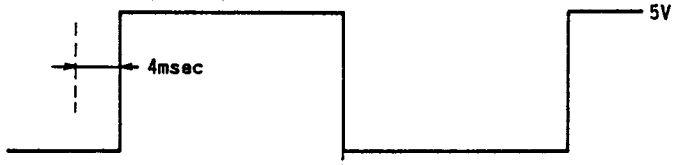


100mVp-p or more
(2.5VDC)
25Hz

*DRUM FG (IC102 ⑰ pin)

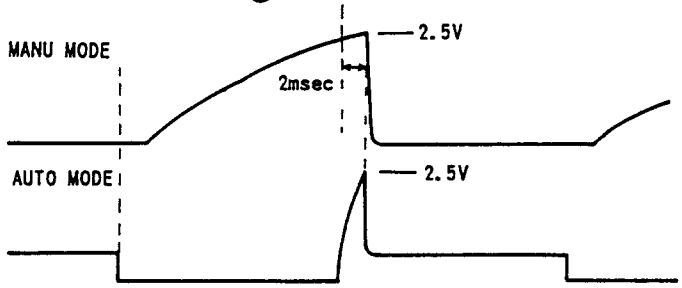
100mVp-p or more
(2.5VDC)
600Hz

*RF SW PULSE (IC102 ⑩ pin)

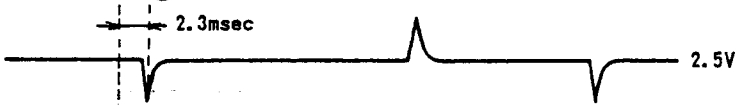


25Hz

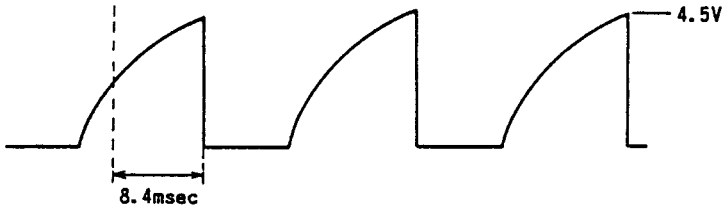
*TRACKING M.M. (IC102 ② pin)



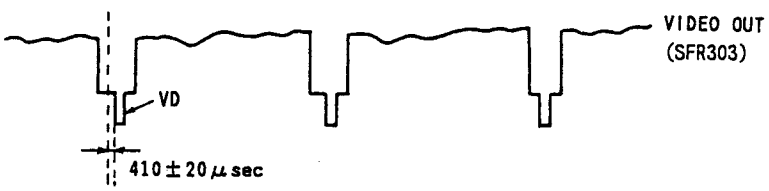
*CTL (IC102 ㉒ pin)



*PG. M.M. (IC102 ㉘ pin)



*SWITCHING POSITION



IC DESCRIPTION

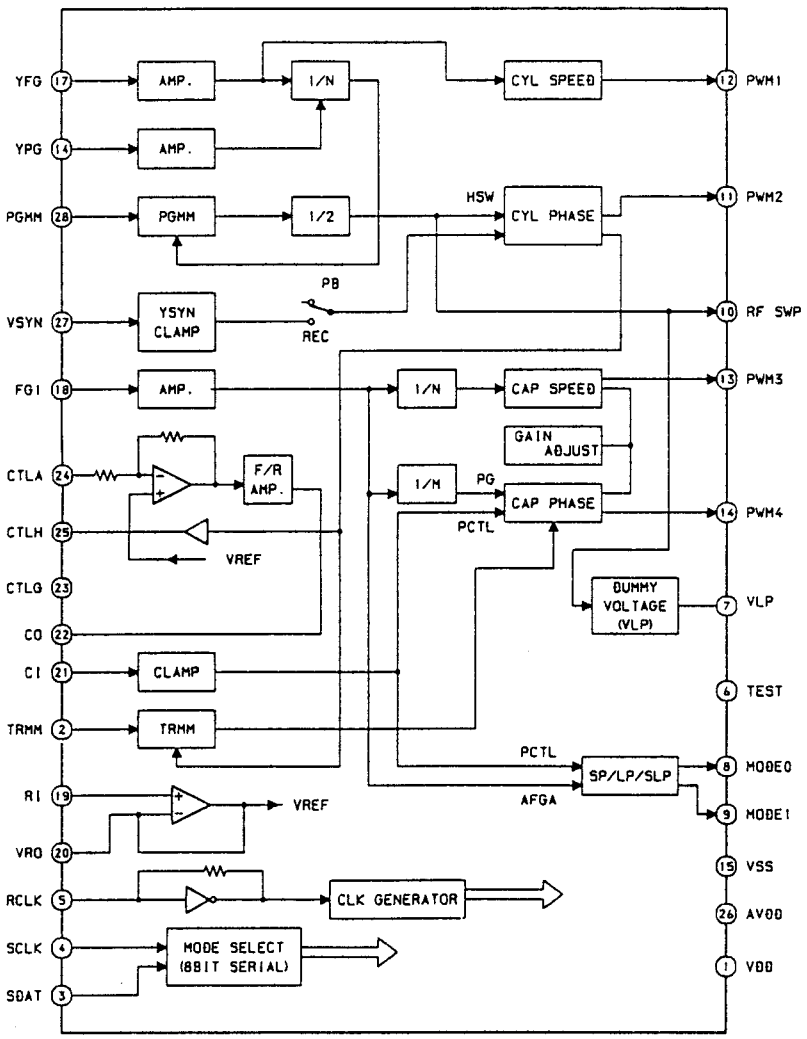
2. IC, UPD75108CW – W02 (IC101)

Pin No.	Pin Name	I/O	Description
1	T – MODE	I	Used during production (Fixed at "H").
2	–	–	———— (Fixed at "H").
3	VD1	–	JOG VD pulse input during PAUSE/CUE/REV.
4	REMOCON	I	Receives a control signal from the light receiving block.
5~8	X0~X3	I	Matrix input.
9	–	–	———— (Fixed at "L")
10	AUTO PLAY	I	Selects AUTO PLAY or not.
11~13	Y0~Y2	O	Matrix output.
14~16	Y3~X5	I	Matrix input.
17	X6	I	Matrix input (Fixed at "L").
18	–	–	———— (Fixed at "L").
19	SCLK	O	Transfers a clock signal to the servo IC.
20	SDAT	O	Transfers data to the servo IC.
21	–	–	———— (NC).
22	CLEAR. P	–	Clear picture control signal (Not used).
23	REEL	I	Receives a reel rotation pulse to detect abnormal stopping of the reel axis.
24	SWP	I	Receives an RF SWP pulse from the servo IC to detect abnormal stopping of the drum.
25	END	I	Tape end detection input.
26	TOP	I	Tape start detection input.
27	$\overline{\text{REC PROOF}}$	I	REC SAFETY detection input.
28	$\overline{\text{C IN}}$	I	Cassette loading detection input.
29	$\overline{\text{C START}}$	I	Cassette insertion detection input.
30	$\overline{\text{C OUT}}$	I	Cassette ejection (ejection complete) detection input.
31	NC	–	(Fixed to +5V power supply).
32	VDD	–	IC power supply (+5V).
33	JOG	O	Outputs "H" during CUE/REVIEW.
34	RSTP	O	Outputs a reset pulse to the tracking microprocessor.
35	A MUTE1	–	Mutes the audio output. Muting is released when play starts.
36	–	–	———— (NC).
37	A MUTE	O	Mutes the audio output. "H" during MUTE. (NC)
38	EE	O	Mutes the video output. Muting is released when play starts.
39	D REC	O	Outputs "H" when the operation becomes stable after STOP is switched to REC or REC PAUSE is switched to REC. (NC)
40	$\overline{\text{DRUM ON}}$	O	Drum rotation on/off control.
41	LM – F	O	Tape loading motor forward rotation control.
42	LM – R	O	Tape loading motor reverse rotation control.
43	CM – F	O	Capstan motor forward rotation control.
44	CM – R	O	Capstan motor reverse rotation control.
45	$\overline{\text{RESET}}$	–	Hard reset.
46	X	–	Connected to the clock generator.

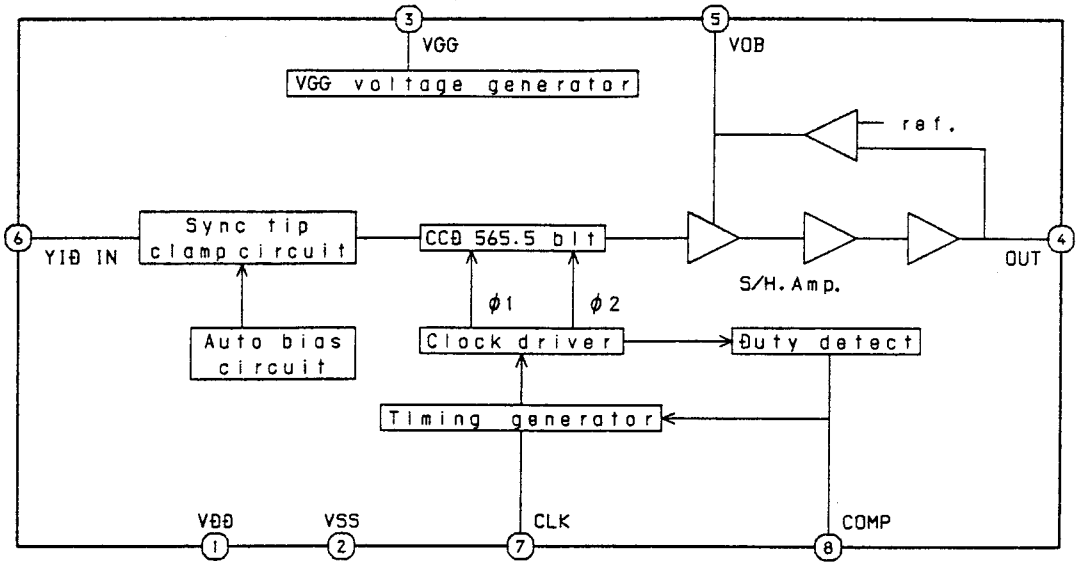
Pin No.	Pin Name	I/O	Description
47	X	–	Connected to the clock generator.
48	C – S – HOLD	O	Stabilizes the speed when CUE/REVIEW is returned to PLAY.
49	FF/REW	O	Raises the gain of the capstan error amplifier during FF/REW.
50	C – SLOW	–	Output the 4-bit data according to the sensor input in the test mode. (NC)
51	SLOW		
52	REV		
53	CUE		
54	S.ADV	–	Outputs "H" in the CUE/REV/PB PAUSE mode. (NC)
55	STILL	O	Outputs "H" in the PB PAUSE/REC PAUSE mode. (NC)
56	PLAY	O	Outputs "H" in the PLAY mode. (NC)
57	REC	O	Outputs "H" in the REC/REC PAUSE mode. (NC)
58	REW	O	Outputs "H" in the REW mode. (NC)
59	FF	O	Outputs "H" in the FF mode. (NC)
60	VD – 2	O	Mutes the video output during power off.
61	REPEAT	O	Outputs "H" in the REPEAT mode.
62	D PB	O	Outputs "H" when the tape transport is stabilized during PLAY. (NC)
63	POWER	O	Power unit on/off control. Outputs "H" when the power unit is turned on.
64	VSS	–	GND of power supply.

IC BLOCK DIAGRAM

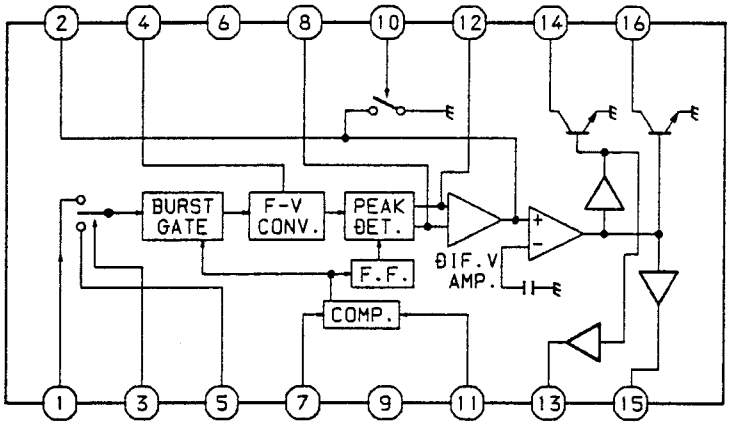
IC,MN67481



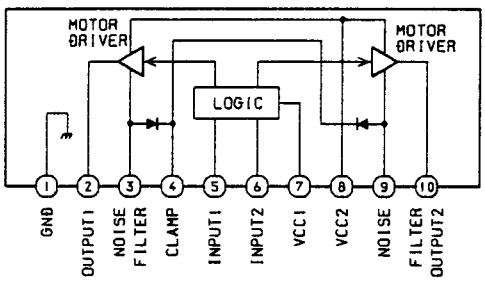
IC,LC8992



IC,LA7311

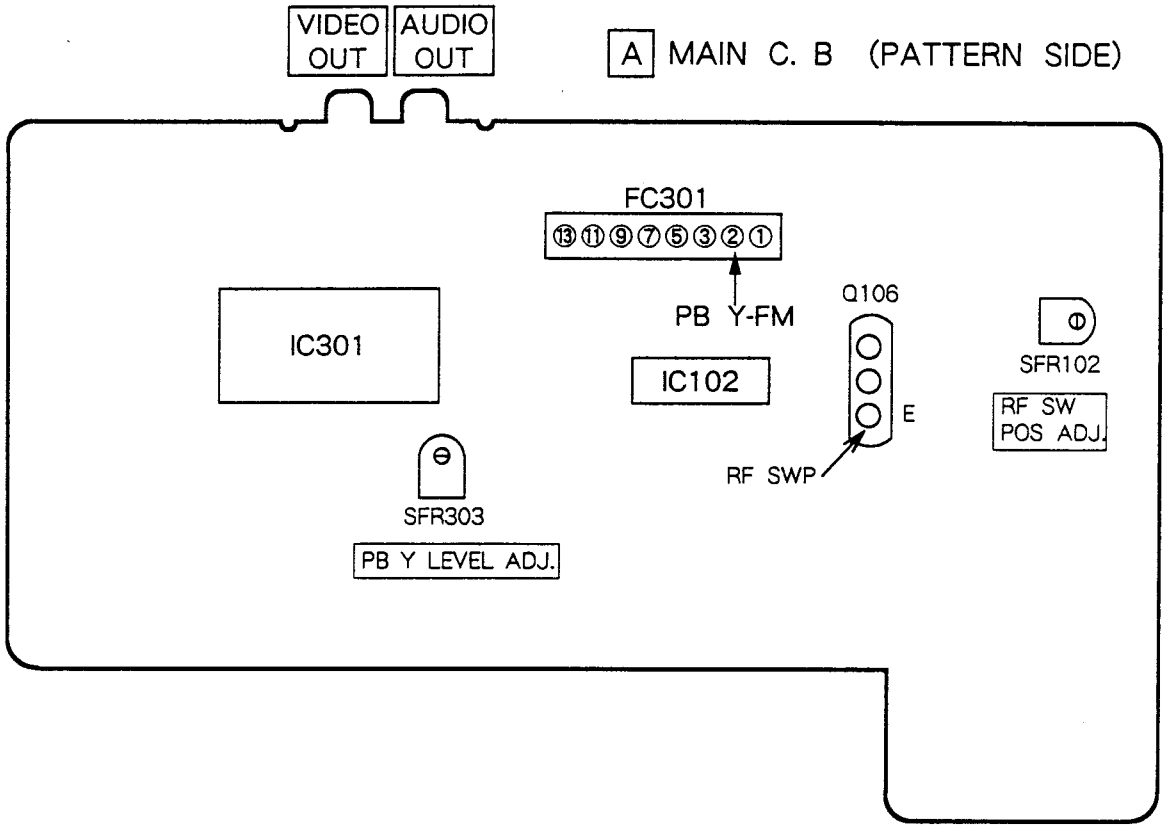


IC,BA6219B



ELECTRICAL ADJUSTMENT

1. SERVICING LOCATIONS



2. SERVO ADJUSTMENT

1. RF Switching Position Adjustment (Main Circuit Board)

Oscilloscope CH1 : VIDEO OUTPUT
CH2 : RF SWITCHING PULSE
(Ⓔ of Q106)

1) Play back the alignment tape TTV-P1.
2) Set the tracking volume to center.
3) Adjust SFR102 on main circuit board so that the switching position becomes as shown below.

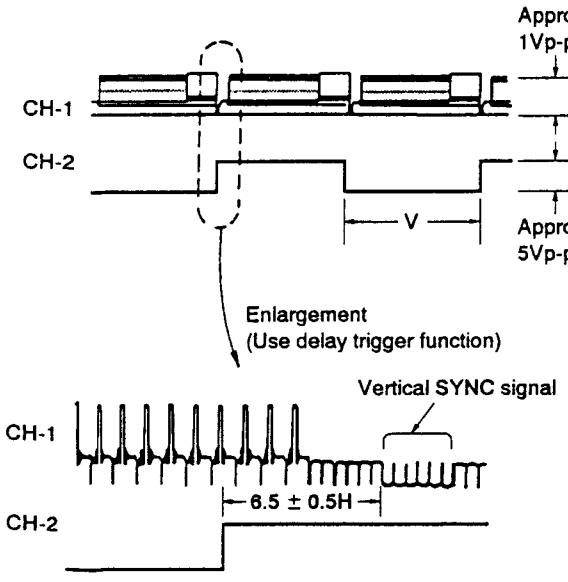


Fig-1

3. VIDEO ADJUSTMENT

1. PB Y Level Adjustment (Main Circuit Board)

Oscilloscope : VIDEO OUT

1) Terminate the VIDEO OUT jack with 75ohm or connect the monitor TV.
2) Play back the alignment tape TTV-P1.
3) Adjust SFR303 so that the video output level is as shown in the diagram below.

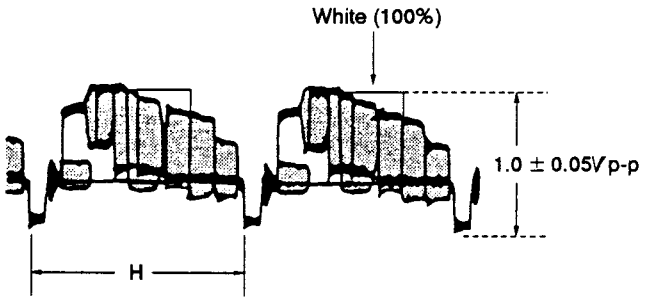


Fig-2

MECHANICAL ADJUSTMENT

1. TAPE PATH COARSE ADJUSTMENT

1 – 1. Adjustment Points

Ⓐ Impedance Roller
Ⓑ Supply Guide Roller
Ⓒ Take-Up Guide Roller
Ⓓ Tape Guide

1 – 2. Checking Procedure

1 – 2 – 1. Load a blank tape and play it back.

1 – 2 – 2. Check that the tape dose not curl at guides Ⓐ~Ⓓ.

* Perform play and stop several times to check. (See Figure-1)

1 – 2 – 3. Check that the tape runs smoothly so its bottom edge is parallel with the drum lead. (See Figure-2)

1 – 2 – 4. Also check that the tape does not curl at the "Ⓐ Impedance Roller" during review.

1 – 2 – 5. Check that the tape does not curl between the "Ⓒ Take-Up Guide Roller" and "Ⓓ Tape Guide". If it does curl, perform 3. ACE HEAD ADJUSTMENT.

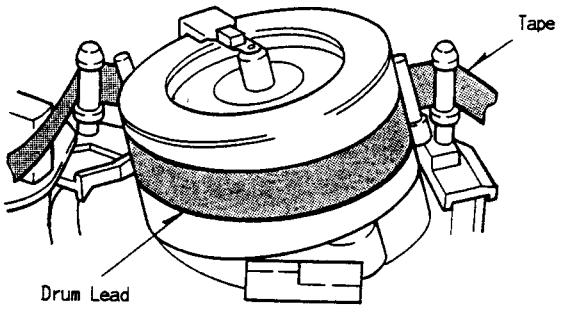


Fig-2

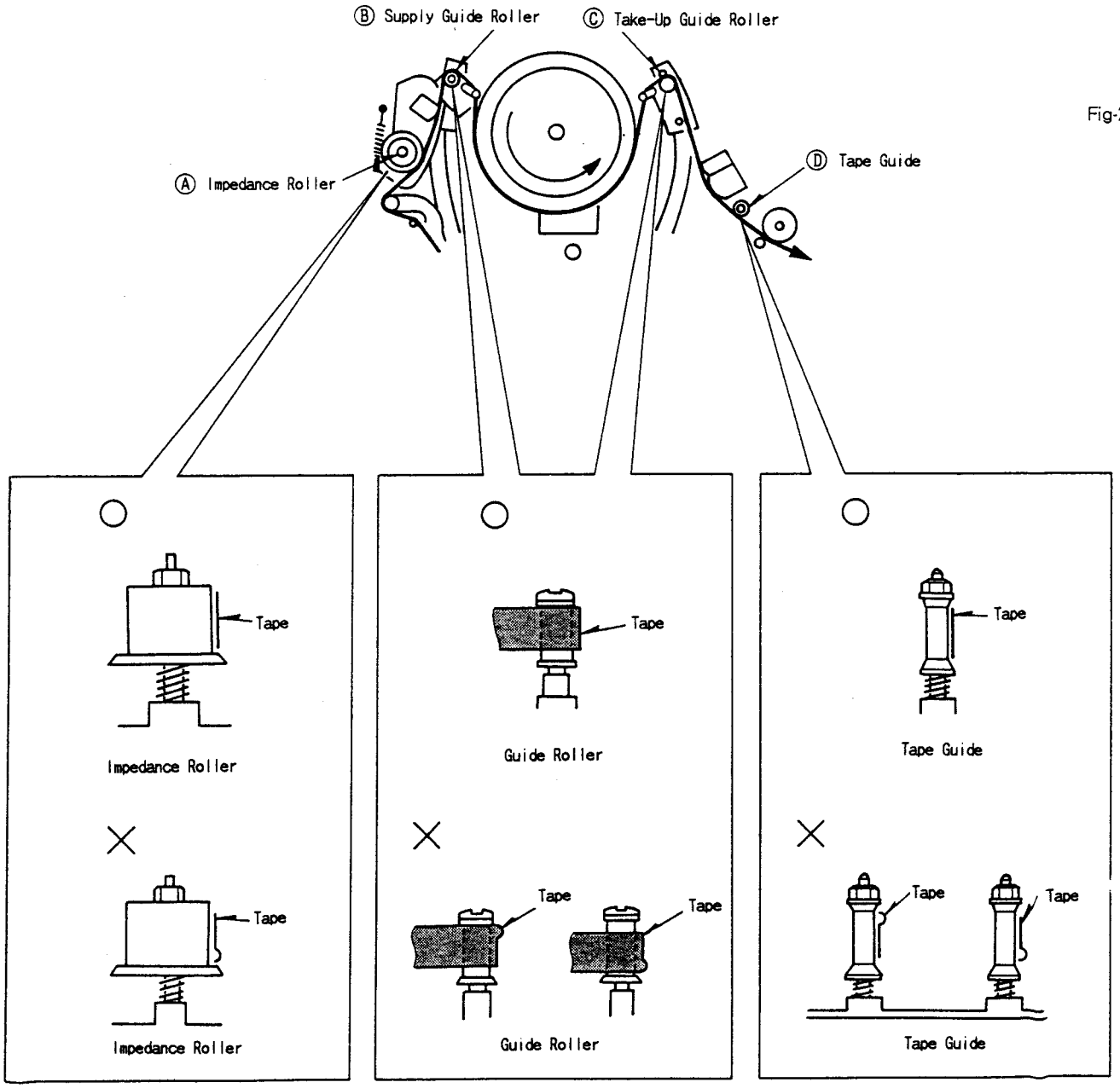


Fig-1

1 – 3. Adjustment Procedure

1 – 3 – 1. If tape curls, adjust the "Ⓐ Impedance Roller", "Ⓑ Supply Guide Roller", "Ⓓ Tape Guide" and "Ⓒ Take-Up Guide Roller" in this order. (See Figure-3)

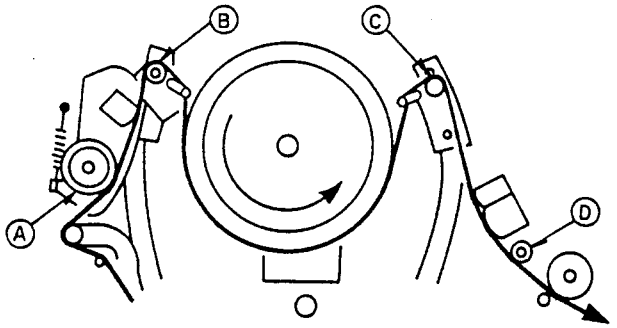
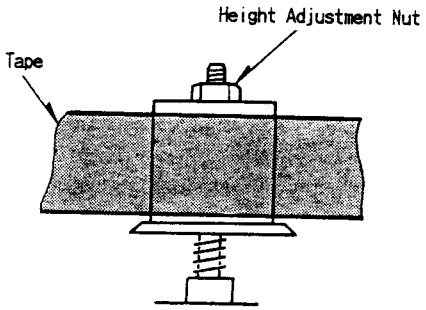


Fig – 3

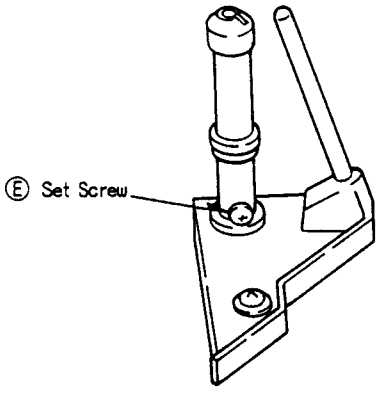
1 – 3 – 2. If tape curls at the "Ⓐ Impedance Roller", adjust the "Height Adjustment Nut" so the tape runs as shown in Fig. 4.



Ⓐ Impedance Roller

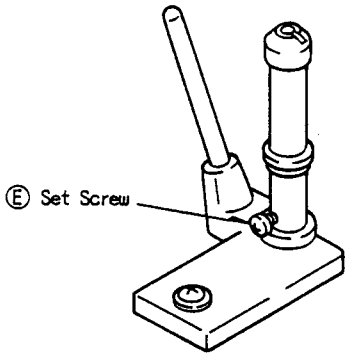
Fig – 4

1 – 3 – 3. If tape curls at the "Ⓑ Supply Guide Roller" or "Ⓒ Take-Up Guide Roller", loosen the "Ⓔ Set Screw" so the guide roller turns slightly and use an adjustment screwdriver to adjust the height of the guide roller. (See Figure-5)



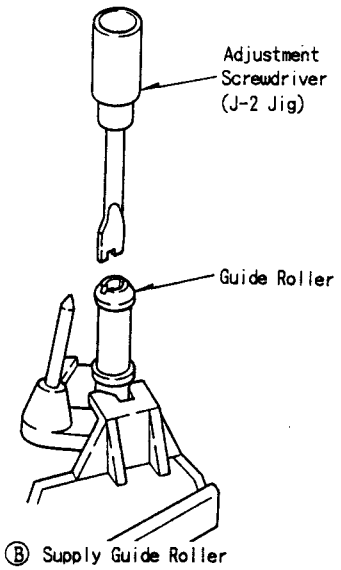
Ⓑ Supply Guide Roller

Fig – 5 – 1



Ⓒ Take-Up Guide Roller

Fig – 5 – 2

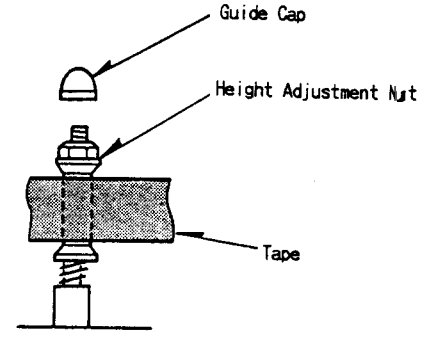


Ⓑ Supply Guide Roller

Fig – 5 – 3

1 – 3 – 4. If tape curls at the "Ⓓ Tape Guide", remove the guide cap and adjust the "Height Adjustment Nut". (See Figure-6)

Note : Since the guide cap is put on with a small amount of adhesive, turn it to the left and right slightly and then pull it out gradually.



Ⓓ Tape Guide

Fig – 6

2. ACE HEAD ADJUSTMENT (HEIGHT/TILT/AZIMUTH)

1) Play a blank tape. (See Figure-7)
2) Use the "Ⓕ Height Adjustment Nut" and "Ⓗ Tilt Adjustment Screw" to adjust the height and tilt of the " ACE Head" so the tape runs smoothly at the "Ⓓ Tape Guide".
3) Connect an oscilloscope to the AUDIO OUT jack. Set the oscilloscope's TIME range to 0.5 msec/DIV.
4) Play the alignment tape (TTV – P1).
5) Adjust the " Ⓕ Height Adjustment Nut" so the amplitude of the waveform on the oscilloscope is maximum. (See Figure-8)
6) If the tape is slack between the "Ⓒ Take-Up Guide Roller" and "ACE Head", adjust the "Ⓗ Tilt Adjustment Screw" to remove the slack.
7) Play the alignment tape (TTV – P2).
8) Adjust the "Ⓖ Azimuth Adjustment Screw" so the amplitude of the waveform on the oscilloscope is maximum.

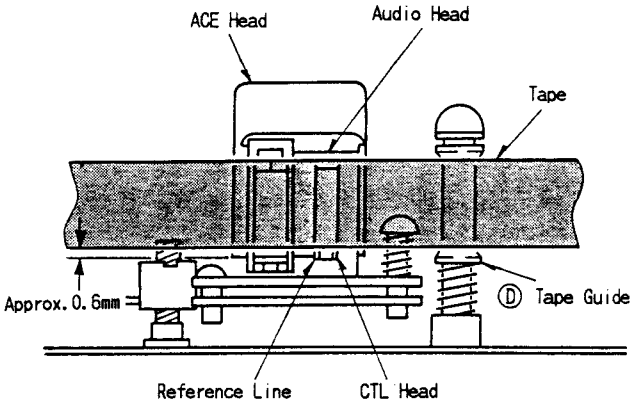


Fig – 7

3. FM ENVELOPE ADJUSTMENT

1) Connect an oscilloscope as follows.
   CH – 1 : Connector FC301 pin ② (PB Y – FM) on VIDEO C. B
   CH – 2 : Transistor Q106 Ⓔ(RF SWP) on VIDEO C. B
   Trigger the oscilloscope with CH – 2 and set the TIME range to 5 msec/DIV.
2) Play the alignment tape (TTV – P2).
3) Set the tracking control (RV801) to the center.
4) Observing the waveform on the oscilloscope, adjust the "Ⓑ Supply Guide Roller" and "Ⓒ Take-Up Guide Roller" so the FM waveform is flat as shown in Fig. 9 a. (See Figure-1)
   Note : If the envelope is too small, turn the "Ⓘ X-Value Adjustment Nut" so 2 – 3 ridges protrude. (See Figure-10)
5) If the envelope is as shown in Fig. 9 b, turn the "Ⓑ Supply Guide Roller" counterclockwise.
   If the envelope is as shown in Fig. 9 c, turn the " Ⓑ Supply Guide Roller" clockwise.
6) If the envelope is as shown in Fig. 9 d, turn the " Ⓒ Take-Up Guide Roller" counterclockwise.
   If the envelope is as shown in Fig. 9 e, turn the " Ⓒ Take-Up Guide Roller" clockwise.
7) After adjusting the FM envelope, tighten the " Ⓔ Set Screw". (See Figure-5)
8) Repeat playback, cue and review, and check that the normal FM envelope can be restored immediately.

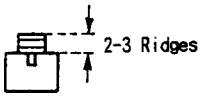


Fig – 10

Ⓘ X-Value Adjustment Nut

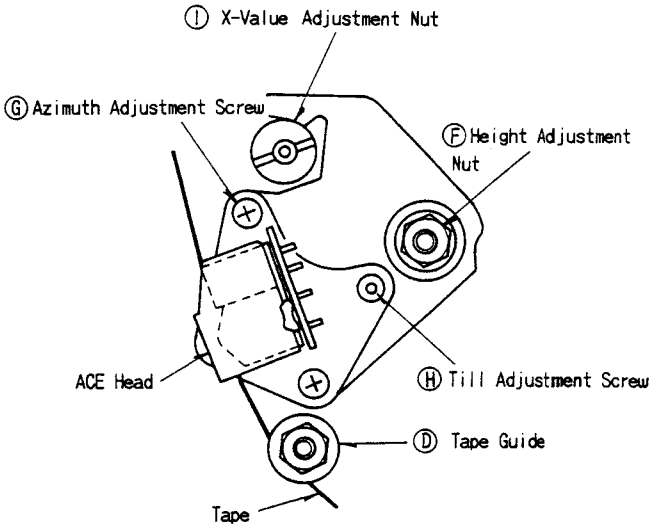


Fig – 8

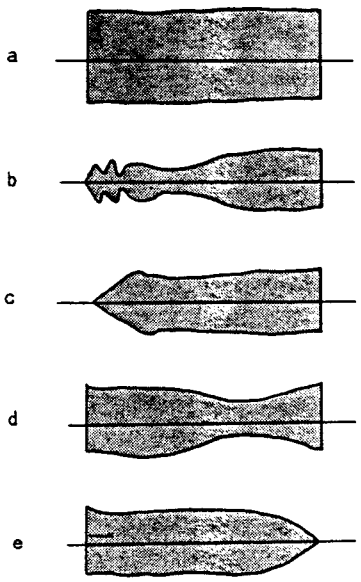


Fig – 9

4. X-VALUE ADJUSTMENT

1) Connect an oscilloscope in the same way as in FM envelope adjustment.
2) Play the alignment tape (TTV – P2).
3) Set the tracking control (RV801) to the center.
4) Adjust the "Ⓘ X-Value Adjustment Nut" so the amplitude of the waveform on the oscilloscope is maximum.
5) Vary the tracking control (RV801) in the + or – direction from the center position and check that the amplitude drops while the waveform is flat.
6) Check that there is no curling of tape at the Ⓐ~ Ⓓ guides.
   If it curls, perform adjustment starting from 1. TAPE PATH COARSE ADJUSTMENT. (See Figure-1)
7) After adjustment is completed, fix the "Ⓔ Set Screw" and "Ⓗ Tilt Adjustment Screw" with locking paint.

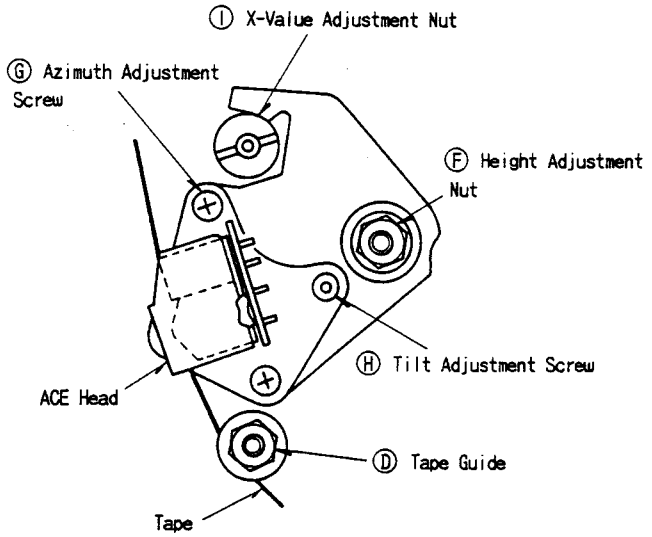


Fig – 11

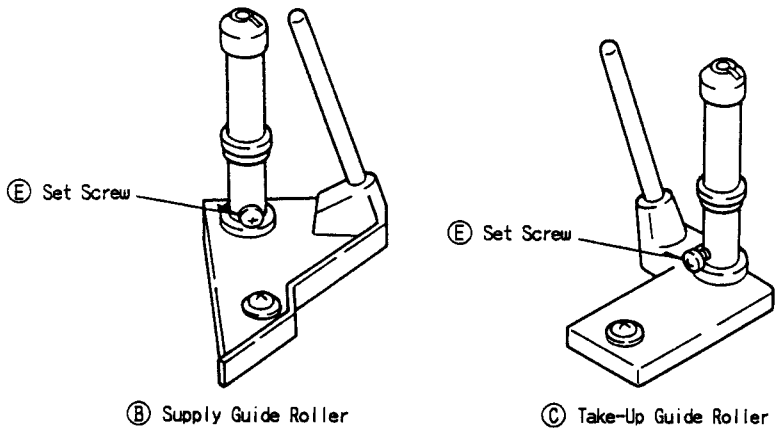
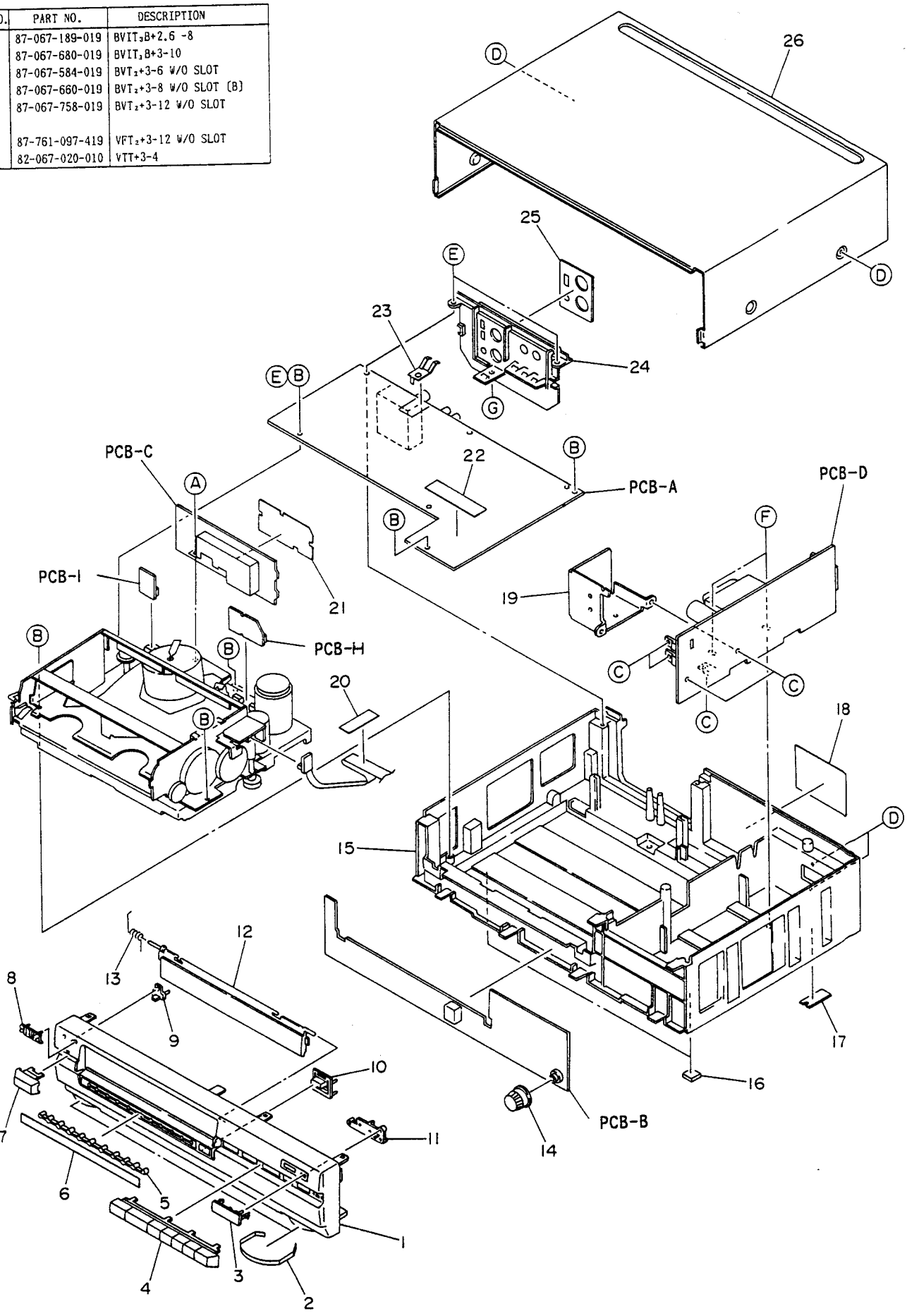


Fig – 12

EXPLODED VIEW – 1

REF.NO.	PART NO.	DESCRIPTION
A	87-067-189-019	BVIT$_3$B+2.6 -8
B	87-067-680-019	BVIT$_3$B+3-10
C	87-067-584-019	BVT$_2$+3-6 W/O SLOT
D	87-067-660-019	BVT$_2$+3-8 W/O SLOT (B)
E	87-067-758-019	BVT$_2$+3-12 W/O SLOT
F	87-761-097-419	VFT$_2$+3-12 W/O SLOT
G	82-067-020-010	VTT+3-4



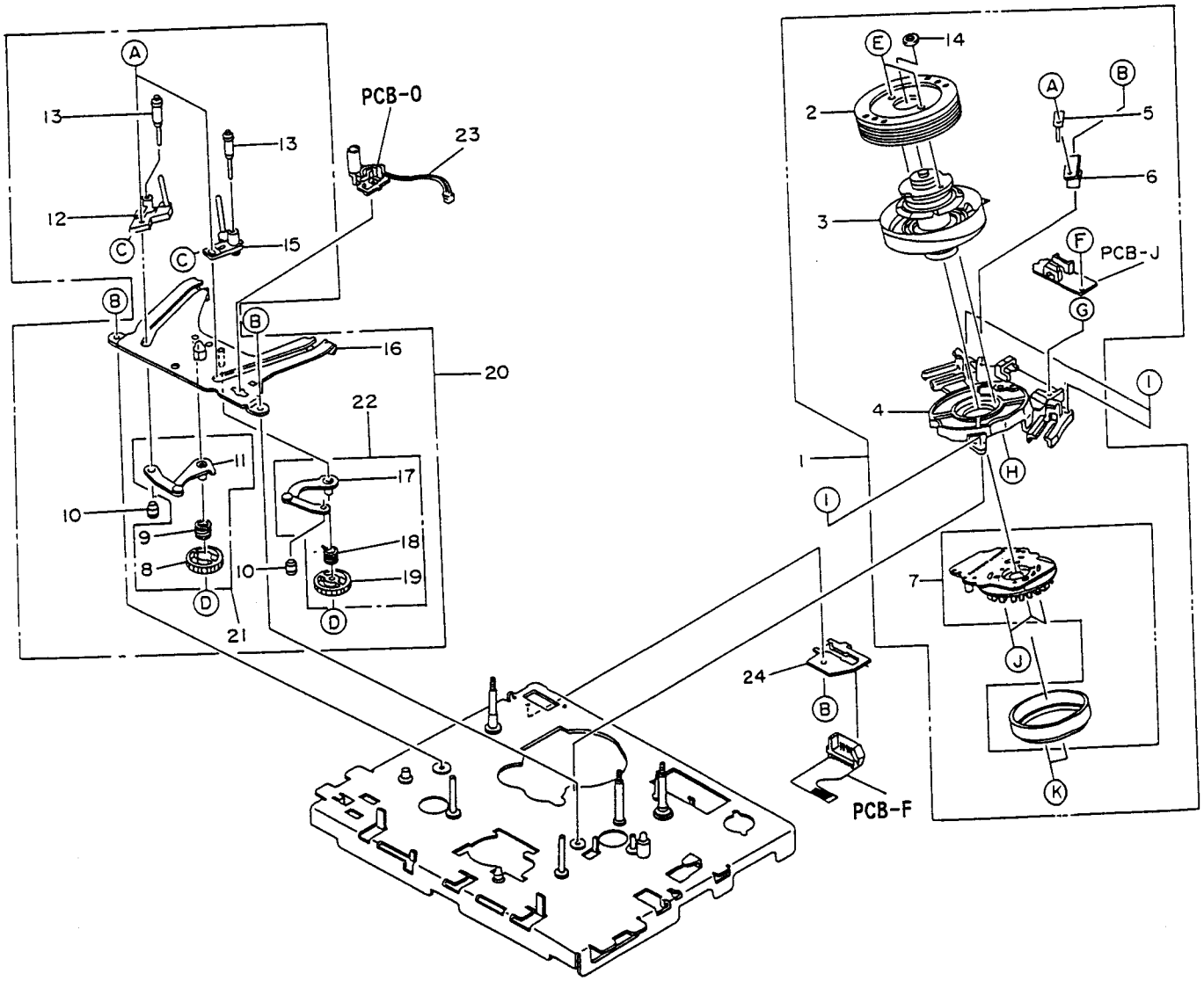
MECHANICAL PARTS LIST

DESCRIPTIONで判断できない物は最終ページの "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	1-1	★82-JUA-001-210	CAB, FR(E212SH)	*	1
	1-1	★82-JUA-042-019	CAB, FR(E212SHJNM)	*	1
	1-1	★82-JUA-044-019	CAB, FR(E212SENM)	*	1
	1-1	★82-JUA-029-110	CAB, FR(E275DKKE)	*	1
	1-1	★82-JUA-032-019	CAB, FR(E275DKKEJNM)	*	1
	1-1	★82-JUA-021-110	CAB, FR(E1010DH, DHKD)	*	1
	1-1	★82-JUA-045-019	CAB, FR(E1010SENM)	*	1
	1-2	★81-JU6-010-010	PLATE, FOOT (E212SH, E275DKKE, E1010DH, DHKD)		2
	1-2	★82-JU8-044-019	PLATE, FOOT S (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)		2
	1-3	★82-JUA-007-019	BADGE, REPEAT	*	1
	1-4	★82-JUA-004-010	KEY, PLAY A (E212SH, E275DKKE, E1010DH, DHKD)	*	1
	1-4	★82-JUA-006-019	KEY, PLAY A S (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)	*	1
	1-5	★82-JU8-010-010	LIGHT, GUIDE, DS(E212SH, E275DKKE, E1010DH, DHKD)		1
	1-5	★82-JU8-026-019	LIGHT, GUIDE, DS S (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)		1
	1-6	★82-JUA-012-010	PLATE, DISPLAY A (E212SH, E1010DH, DHKD, E275DKKE)	*	1
	1-6	★82-JUA-043-019	PLATE, DISPLAY A S (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)	*	1
	1-7	★82-JU8-006-019	KEY, POWER		1
	1-8	★82-DS1-011-019	BADGE, AIWA N		1
	1-9	★82-JU8-009-019	LIGHT GUIDE, PW		1
	1-10	★82-JU8-005-019	KEY, EJECT		1
	1-11	★82-JU8-008-019	LIGHT GUIDE, RE-A		1
	1-12	★82-JUA-015-110	DOOR, CASS (E212SH, E1010DH, DHKD, E275DKKE)	*	1
	1-12	★82-JUA-010-019	DOOR, CASS (E212SHJNM, SENM, E275DKKEJ, E1010SENM)	*	1
	1-13	82-JU8-207-010	SPR-T, DOOR		1
	1-14	★82-JU8-016-019	KNOB, VOL		1
	1-15	---	CAB, MAIN S		1
	1-16	★89-JU7-031-010	FELT, FOOT 8-8 (E212SH, E1010DH, DHKD, E275DKKE)		2
	1-16	★81-JUK-045-019	FELT, FOOT 8-8 (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)		2
	1-17	★82-JUA-018-010	PLATE, VOLTAGE(E212SH, E275DKKE)	*	1
	1-17	★82-JUA-020-019	PLATE, VOLTAGE S(E212SHJNM, E275DKKEJNM)	*	1
	1-18	★82-JUA-014-010	PLATE, SPEC(E212SH)	*	1
	1-18	★82-JUA-041-019	PLATE, SPEC(E212SHJNM)	*	1
	1-18	★82-JUA-034-019	PLATE, SPEC(E212SENM)	*	1
	1-18	★82-JUA-030-010	PLATE, SPEC(E275DKKE)	*	1
	1-18	★82-JUA-033-019	PLATE, SPEC(E275DKKEJNM)	*	1
	1-18	★82-JUA-023-010	PLATE, SPEC(E1010DH)	*	1
	1-18	★82-JUA-024-010	PLATE, SPEC(E1010DHKD)	*	1
	1-18	★82-JUA-046-019	PLATE, SPEC(E1010SENM)	*	1
	1-19	82-JU8-203-010	HT SINK, PW (E212SH, E1010DH, DHKD, E275DKKE)		1
	1-19	82-JU8-206-010	HT SINK(E212SHJNM, SENM, E275DKKEJNM)		1
	1-20	---	SH, 15-50 S		1
	1-21	---	SHLD, HA-2		1
	1-22	---	PLATE, PCB(E212SH, E1010DH, E275KDKKE)		1
	1-23	---	PLATE, EARTH 2(E212SHJNM, SENM, E275DKKEJNM)		1
	1-24	★82-JU8-013-010	PLATE, JACK(E212SH)		1
	1-24	★82-JU8-042-019	PLATE, JACK(E212SHJNM)		1
	1-24	★82-JU8-032-019	PLATE, JACK(E212SENM, E1010SENM)		1
	1-24	★82-JUA-031-010	PLATE, JACK(E275DKKE)	*	1
	1-24	★82-JU9-036-019	PLATE, JACK(E275DKKEJNM)		1
	1-24	★82-JUA-022-010	PLATE, JACK(E1010DH, DHKD)	*	1
	1-25	★82-JUA-005-019	PANEL, JACK A S (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)	*	1
	1-25	★82-JUA-003-110	PANEL, JACK A (E212SH, E1010DH, DHKD, E275DKKE)	*	1
	1-26	★82-JU8-011-010	CAB, STEEL(E212SH, E275DKKE, E1010DHK, DHKD)		1
	1-26	★82-JU8-038-019	CAB, STEEL (E212SHJNM, SENM, E275DKKEJNM, E1010SENM)		1

EXPLODED VIEW – 2

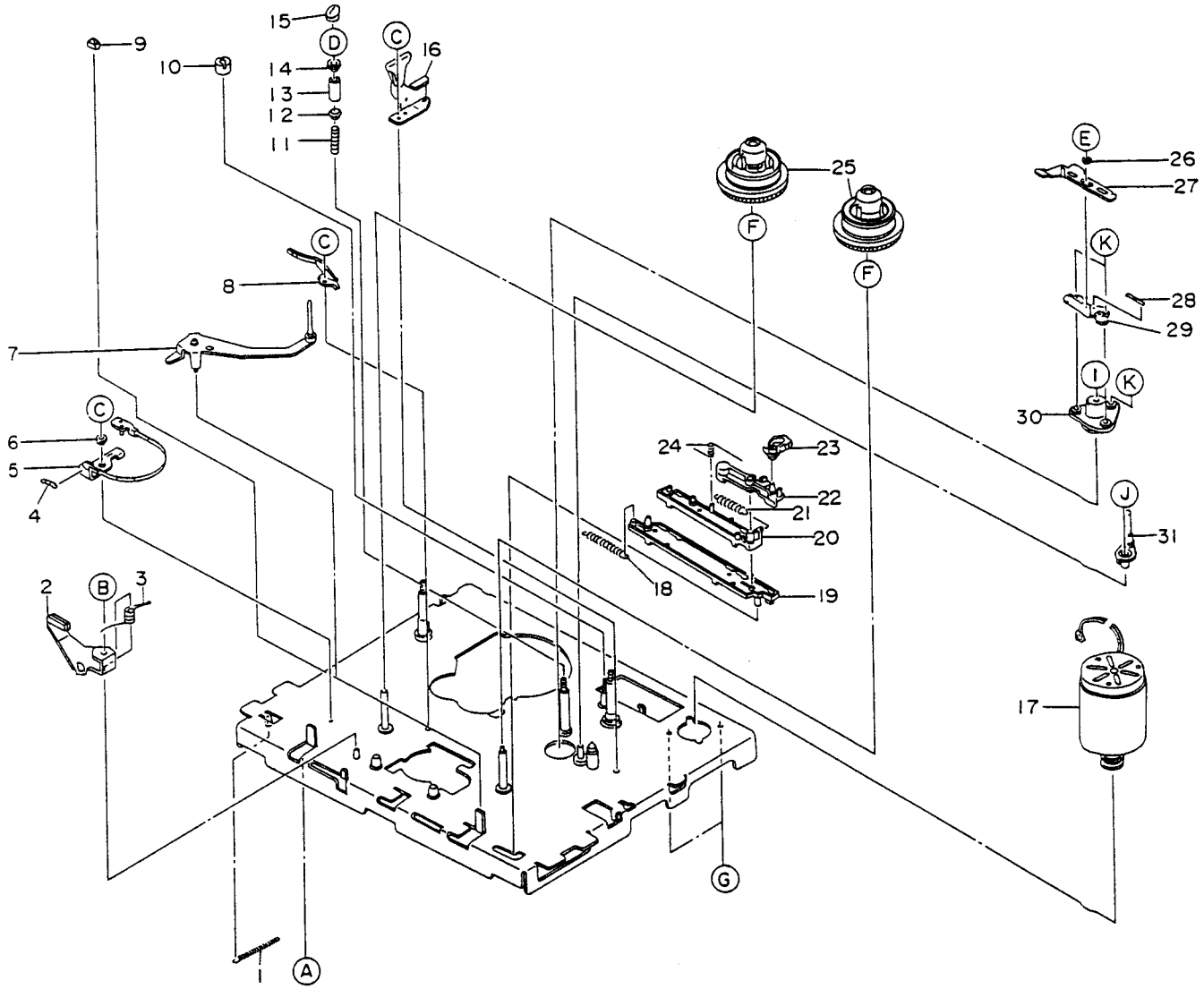
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-665-000-000	CUP SCREW 2.6×3	E	S9-972-000-000	BIND TAMS SCREW 3×8	I	S9-205-000-000	C TAPPING SCREW 3×10
B	S9-192-000-000	C TAPPING SCREW 2.6×5	F	S9-973-000-000	W TAMS SCREW 2.6×6	J	S9-055-000-000	SCREW 2.6×20
C	S9-C17-202-730	SCREW CAMERA	G	S9-715-000-000	WASHER 2.6	K	S9-999-800-990	COLLAR SCREW
D	S9-884-000-000	PW CUT 2.6×6×0.5	H	S9-999-180-180	TAPPING SCREW			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	2-1	★S8-059-725-0A0	CYLINDER ASSY		1
	2-2	S8-059-010-190	UPPER DRUM		1
	2-3	★S8-059-013-040	LOWER DRUM ASSY		1
	2-4	★S8-059-010-010	CYLINDER MOUNT		1
	2-5	★S8-059-010-540	DRUM EARTH		1
	2-6	★S8-059-010-020	DRUM EARTH BRACKET		1
	2-7	S6-004-030-240	MOTOR TM85		1
	2-8	★S8-059-030-060	T LOADING GEAR L		1
	2-9	★S8-059-030-080	LOADING GEAR SPRING L		1
	2-10	★S8-059-030-140	LOADING BOSS		2
	2-11	★S8-059-035-020	LOADING PLATE L SEMI ASSY		1
	2-12	★S8-059-030-040	LOADING BLOCK L		1
	2-13	★S8-059-010-260	DRAM EARTH		2
	2-14	---	CONNECTOR BRACKET		1
	2-15	★S8-059-030-050	LOADING BLOCK R		1
	2-16	★S8-059-035-010	LOADING BASE SEMI ASSY		1
	2-17	★S8-059-035-030	LOADING PLATE R SEMI ASSY		1
	2-18	★S8-059-030-090	LOADING GEAR SPRING R		1
	2-19	★S8-059-030-070	T LOADING GEAR R		1
	2-20	★S8-059-033-010	LOADING BASE ASSY		1
	2-21	★S8-059-033-020	LOADING GEAR L ASSY		1
	2-22	★S8-059-033-030	LOADING GEAR R ASSY		1
	2-23	★S8-059-133-030	LAMP ASSY		1
	2-24	---	CONNECTOR BRACKET		1

EXPLODED VIEW – 3

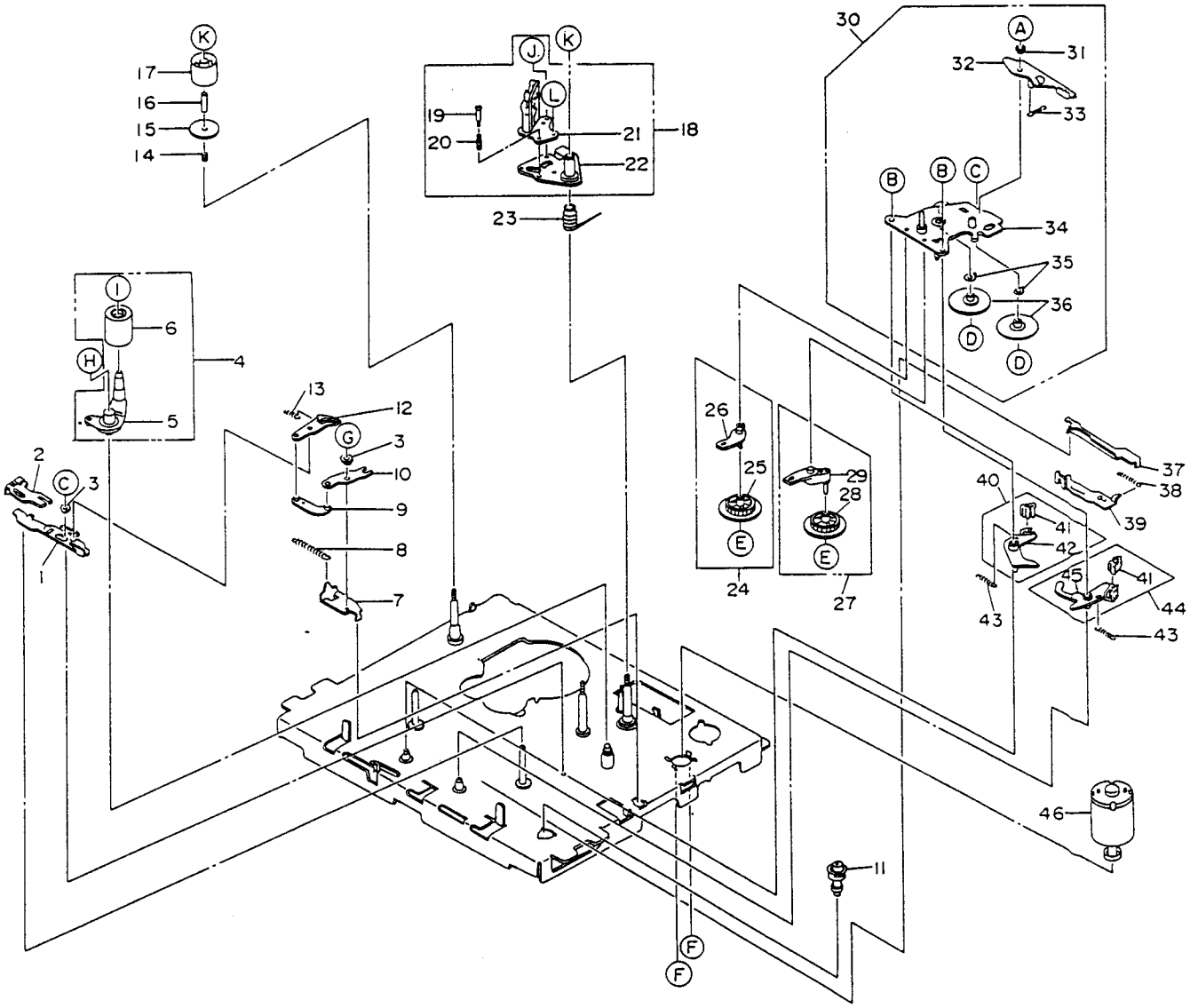
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-999-030-150	PW CUT 2.1×4×0.5	E	S9-077-000-000	TAMS SCREW 2×4	I	S9-999-060-030	NYLON WASHER 2.92×5×0.5
B	S9-876-000-000	PW CUT 2.1×5×0.5	F	S9-969-000-000	D WASHER 3.1×6×0.6	J	S9-884-000-000	PW CUT 2.6×6×0.5
C	S9-191-000-000	C TAPPING SCREW 2.6×4	G	S9-105-000-000	TAMS SCREW 3×4			
D	S9-453-000-000	NUT 3.0	H	S9-195-000-000	C TAPPING SCREW 2.6×8			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	3-1	★S8-059-080-200	BT ACTUATE PLATE SPRING		1
	3-2	★S8-059-103-040	S SOFT BRAKE ASSY		1
	3-3	★S8-059-100-220	S SOFT BRAKE SPRING		1
	3-4	★S8-059-080-170	BAND HOLDER SPRING		1
	3-5	★S8-059-083-020	BT BAND ASSY		1
	3-6	★S8-059-080-150	BAND HOLDER COLLAR		1
	3-7	★S8-059-085-010	BT ARM SEMI ASSY		1
	3-8	★S8-059-080-090	BACK TENSION SUPPORT		1
	3-9	★S8-059-020-230	DAMPER RUBBER		1
	3-10	★S8-059-020-290	TRACKING ADJUSTER		1
	3-11	★S8-059-020-260	TAPE GUIDE SPRING		1
	3-12	★S8-000-030-290	TAPE GUIDE FLANGE D		1
	3-13	★S8-000-030-140	TAPE GUIDE		1
	3-14	★S8-000-032-8A0	TAPE GUIDE FLANGE C		1
	3-15	★S8-000-030-190	GUIDE CAP		1
	3-16	★S8-059-023-010	OPEN ANGLE ASSY		1
	3-17	S8-059-073-020	CAPSTAN MOTOR ASSY		1
	3-18	★S8-059-100-100	BRAKE ACTUATE BASE SPRING		1
	3-19	★S8-059-100-090	BRAKE ACTUATE BASE		1
	3-20	★S8-059-100-110	BRAKE PLATE		1
	3-21	★S8-059-100-120	BRAKE PLATE SPRING		1
	3-22	★S8-059-100-130	TRIGGER LEVER		1
	3-23	★S8-059-100-140	TRIGGER HOOK		1
	3-24	★S8-059-100-230	TRIGGER LEVER SPRING		1
	3-25	S8-059-053-010	REEL ASSY		2
	3-26	★S8-059-170-100	RG SLIDE PLATE COLLAR		1
	3-27	★S8-059-170-030	RG SLIDE PLATE		1
	3-28	★S8-059-170-110	RG SLIDE SPRING		1
	3-29	★S8-059-170-090	RG SLIDE BASE		1
	3-30	★S8-059-073-010	METAL HOUSING ASSY		1
	3-31	★S8-059-175-020	RG ARM SEMI ASSY		1

EXPLODED VIEW – 4

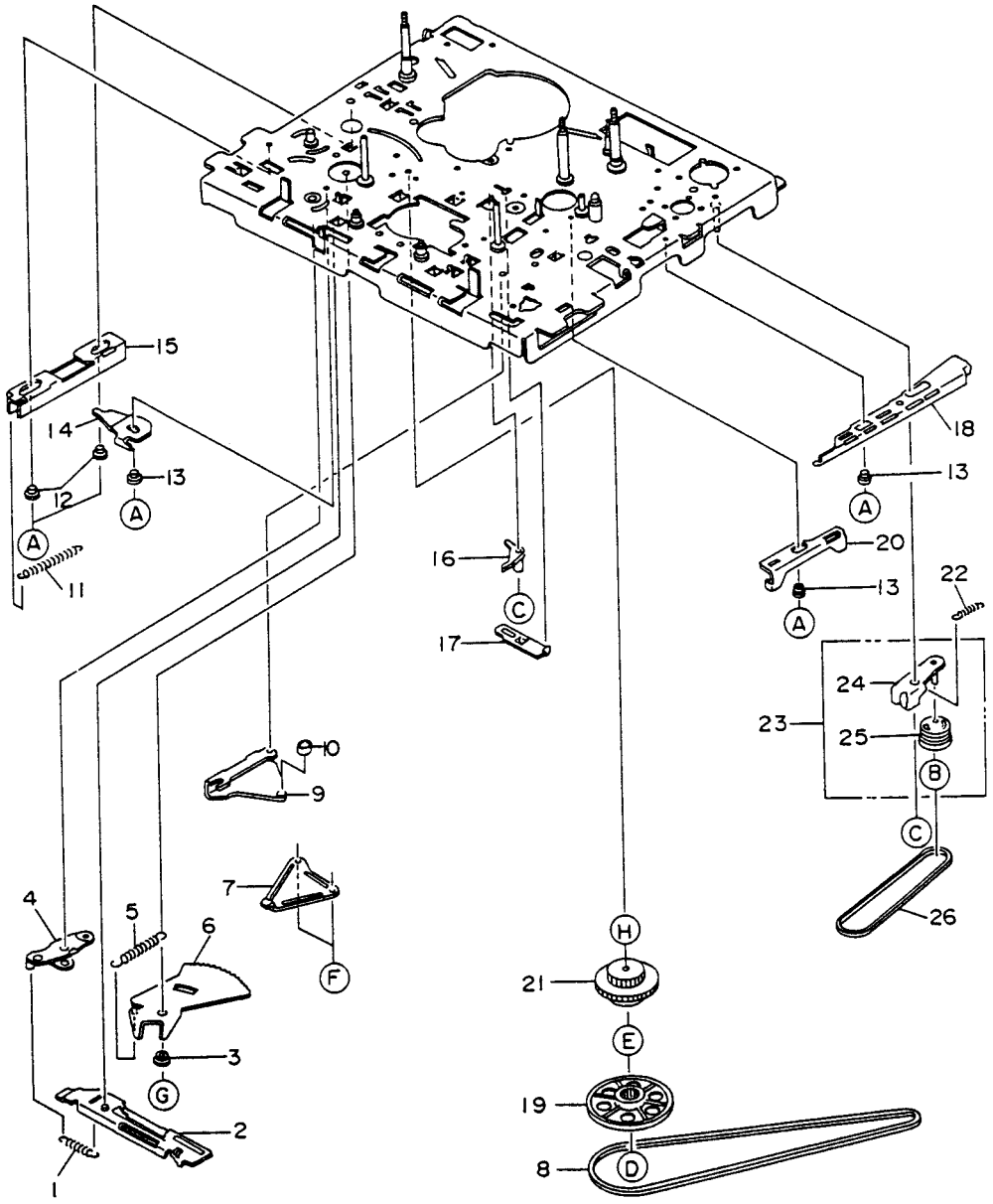
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-974-000-000	SL FH SCREW 2×3	F	S9-105-000-000	C TAPPING SCREW 3×4	K	S9-953-000-000	NYLON NUT M3
B	S9-077-000-000	TAMS SCREW 2×4	G	S9-096-000-000	TAMS SCREW 2.6×4	L	S9-999-200-250	SCREW 3×6 (SHAPE TYPE)
C	S9-192-000-000	C TAPPING SCREW 2.6×5	H	S9-999-030-110	PW CUT 5×8×0.5			
D	S9-500-000-000	E RING S1.5	I	S9-038-000-000	SCREW 2.6×4			
E	S9-743-000-000	PW CUT 1.6×3.8×0.3	J	S9-705-000-000	LONG LOCK SCREW 2.6×7			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	4-1	★S8-059-060-240	P SLIDE PLATE A		1
	4-2	★S8-059-060-250	P SLIDE PLATE B		1
	4-3	★S8-059-060-180	COLLAR		1
	4-4	S8-059-063-010	PINCH ROLLER ARM ASSY		1
	4-5	★S8-059-065-010	PINCH ROLLER ARM SEMI ASSY		1
	4-6	S8-000-090-220	PINCH ROLLER A		1
	4-7	★S8-059-060-190	P ANGLE HOLDER		1
	4-8	★S8-059-060-200	P-SPRING, ROLLER		1
	4-9	★S8-059-060-060	JOINT PLATE		1
	4-10	★S8-059-060-050	P ACTUATE ANGLE		1
	4-11	★S8-059-060-180	COLLAR		1
	4-12	★S8-059-060-040	P ACTUATE ARM		1
	4-13	★S8-059-060-090	P-SPRING, ACTUATE ARM		1
	4-14	★S8-059-040-090	TAPE GUIDE FLANGE SPRING		1
	4-15	★S8-059-040-070	TAPE GUIDE FLANGE A		1
	4-16	★S8-059-040-060	IMPEDANCE ROLLER SLEEVE		1
	4-17	★S8-059-040-050	IMPEDANCE ROLLER		1
	4-18	★S8-059-043-070	HEAD BASE ASSY		1
	4-19	★S8-000-060-260	AZIMUTH SPRING SCREW		1
	4-20	★S8-000-060-040	AZIMUTH SPRING		1
	4-21	★S6-204-150-080	ACE HEAD HV224206		1
	4-22	★S8-059-045-020	HEAD BASE SEMI ASSY		1
	4-23	★S8-059-040-150	HEAD SPRING		1
	4-24	★S8-059-093-140	P GEAR ASSY		1
	4-25	★S8-059-092-0A0	PLAY GEAR		1
	4-26	★S8-059-093-030	P GEAR ARM ASSY		1
	4-27	★S8-059-093-150	RF GEAR ASSY		1
	4-28	★S8-059-092-2A0	FF GEAR		1
	4-29	★S8-059-093-040	RF GEAR ARM ASSY		1
	4-30	★S8-059-093-160	SUB PLATE ASSY		1
	4-31	★S8-059-100-070	T SOFT BRAKE ARM COLLAR		1
	4-32	★S8-059-103-030	T SOFT BRAKE ASSY		1
	4-33	★S8-059-100-060	T-SPRING, SOFT BRAKE ARM		1
	4-34	★S8-059-095-010	SUB PLATE SEMI ASSY		1
	4-35	---	WAVE WASHER		3
	4-36	★S8-059-090-6A0	REEL DRIVE GEAR		2
	4-37	★S8-059-100-160	BRAKE LIFTER		1
	4-38	★S8-059-100-180	L BRAKE ACTUATOR SPRING		1
	4-39	★S8-059-100-170	L BRAKE ACTUATOR		1
	4-40	★S8-059-103-010	S BRAKE ARM ASSY		1
	4-41	★S8-059-100-190	BRAKE SHOE		2
	4-42	★S8-059-100-010	S BRAKE ARM		1
	4-43	★S8-059-100-020	BRAKE ARM SPRING		2
	4-44	★S8-059-103-020	T BRAKE ARM ASSY		1
	4-45	★S8-059-100-030	T BRAKE ARM		1
	4-46	S8-059-113-010	LOADING MOTOR ASSY		1
	4-47	★S8-059-113-020	TRIGGER BEARING ASSY		1

EXPLODED VIEW – 5

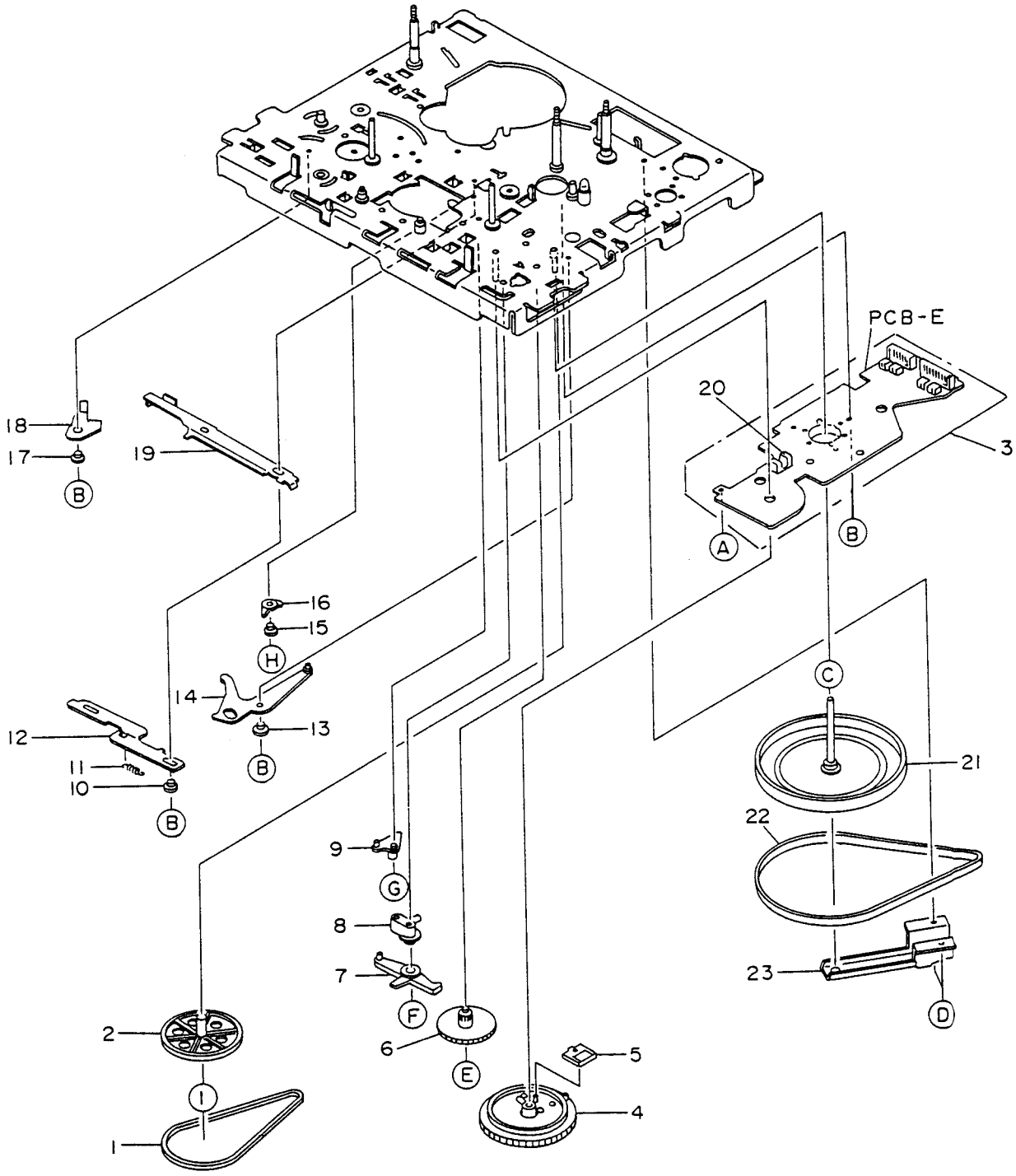
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-192-000-000	C TAPPING SCREW 2.6×5	D	S9-884-000-000	PW CUT 2.6×6×0.5	G	S9-203-000-000	C TAPPING SCREW 3×6
B	S9-743-000-000	PW CUT 1.6×3.8×0.3	E	S9-999-060-040	NYLON WASHER 2.98×6×0.3	H	S9-W03-301-800	NYLON WASHER 3.3×6×0.3
C	S9-876-000-000	PW CUT 2.1×5×0.5	F	S9-078-000-000	TAMS SCREW 2×5			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	5-1	★S8-059-120-050	LOADING ACTUATOR SPRING		1
	5-2	★S8-059-125-030	LOADING ACTUATOR SEMI ASSY		1
	5-3	★S8-059-120-100	L GEAR PLATE COLLAR		1
	5-4	★S8-059-125-020	LOADING ACTUATE LEVER SEMI ASSY		1
	5-5	★S8-059-120-120	L GEAR PLATE SPRING		1
	5-6	★S8-059-120-090	L GEAR PLATE		1
	5-7	★S8-059-120-110	LOADING LEVER REINFORCE PLATE		1
	5-8	★S8-059-150-150	DRIVE BELT		1
	5-9	★S8-059-125-010	LOADING LEVER SEMI ASSY		1
	5-10	★S8-059-120-130	CAM ROLLER		1
	5-11	★S8-059-080-130	BACK TENSION SPRING		1
	5-12	★S8-059-080-210	BT ACTUATE PLATE COLLAR		2
	5-13	★S8-059-060-180	COLLAR		1
	5-14	★S8-059-080-180	BT ACTUATE LEVER		1
	5-15	★S8-059-080-190	BT ACTUATE PLATE		1
	5-16	★S8-059-170-010	RG ACTUATE ARM		1
	5-17	★S8-059-170-020	RG ACTUATE		1
	5-18	★S8-059-150-070	L BRAKE PLATE		1
	5-19	★S8-059-060-180	COLLAR		2
	5-20	★S8-059-150-080	EJECT ACTUATOR		1
	5-21	S8-059-090-170	DRIVE BELT		1
	5-22	★S8-059-150-110	IDLER ARM SPRING		1
	5-23	★S8-059-153-030	E IDLER ARM ASSY		1
	5-24	★S8-059-155-020	E IDLER ARM SEMI ASSY		1
	5-25	★S8-059-150-150	EJECT PULLEY		1
	5-26	S8-059-150-060	FL BELT		1
	5-27	★S8-059-093-100	CLUTCH ASSY		1
	5-28	★S8-059-093-010	MIDDLE PULLEY ASSY		1

EXPLODED VIEW – 6

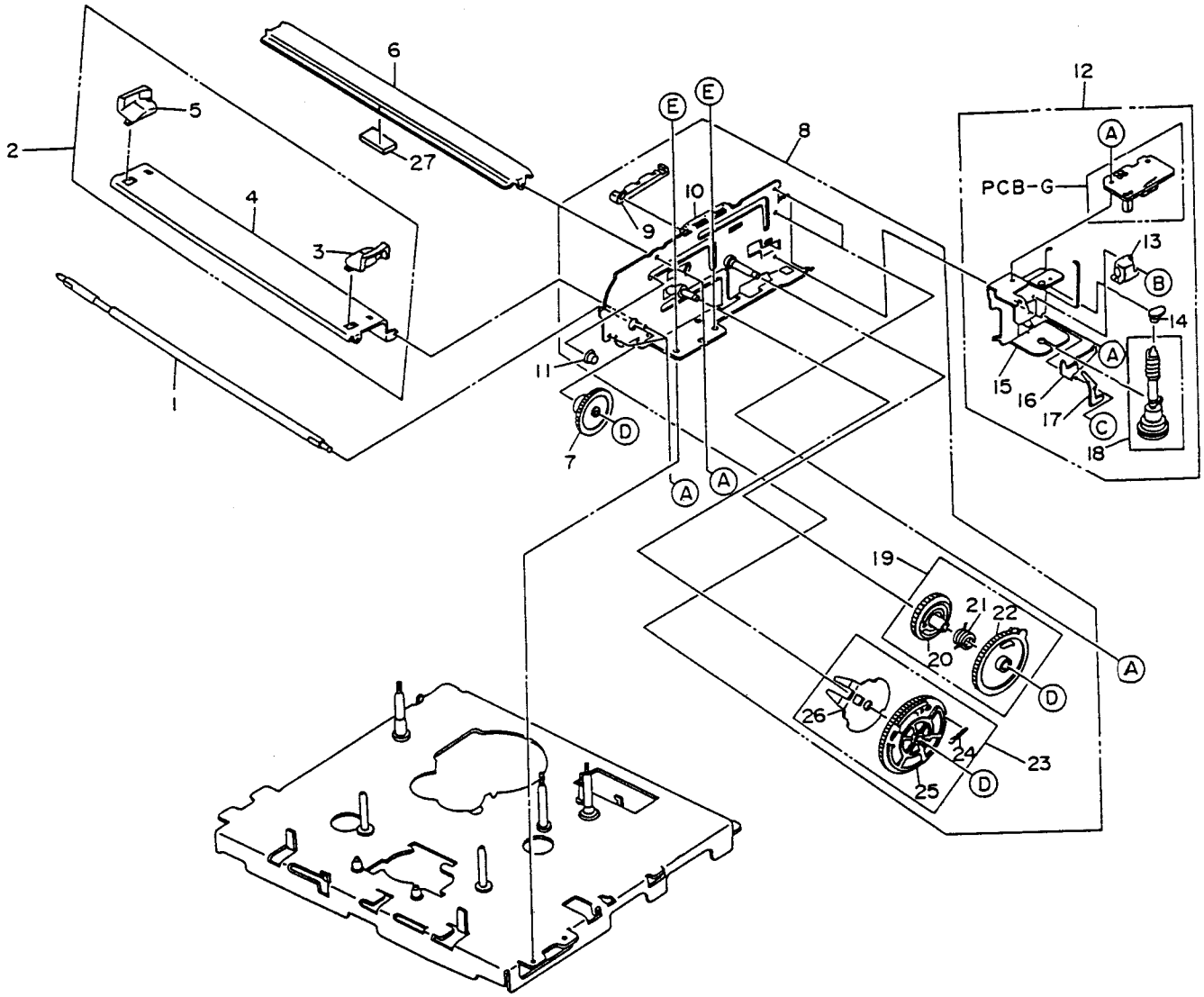
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-803-000-000	S TAPPING SCREW 2.6×5	D	S9-202-000-000	C TAPPING SCREW 3×5	G	S9-884-000-000	PW CUT 2.6×6×0.5
B	S9-192-000-000	C TAPPING SCREW 2.6×5	E	S9-876-000-000	PW CUT 2.1×5×0.5	H	S9-999-180-100	C TAPPING FH SCREW 2.6×4
C	S9-912-000-000	PW 3.1×6×0.5	F	S9-999-030-100	PW CUT 2.6×8×0.5	I	S9-999-700-140	HL WASHER CUT 1.7×4×0.3



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	6-1	★S8-059-110-060	LOADING BELT		1
	6-2	★S8-059-110-030	LOADING PULLEY		1
	6-3	★S8-059-133-020	BASE PLATE ASSY		1
	6-4	★S8-059-110-010	LOADING CAM		1
	6-5	★S8-059-110-020	S BRUSH		1
	6-6	★S8-059-110-040	LOADING GEAR		1
	6-7	★S8-059-110-140	EJECT ARM		1
	6-8	★S8-059-110-130	BRAKE ACTUATE ARM		1
	6-9	★S8-059-110-120	SEARCH ARM B		1
	6-10	★S8-059-060-110	P SLIDER COLLAR		1
	6-11	★S8-059-060-230	P-SPRING, SLIDER		1
	6-12	★S8-059-060-100	P SLIDER		1
	6-13	★S8-059-060-170	P CAM LEVER COLLAR		1
	6-14	★S8-059-065-020	P CAM LEVER SEMI ASSY		1
	6-15	★S8-059-060-130	P CRANK COLLAR		1
	6-16	★S8-059-060-120	P CRANK		1
	6-17	★S8-059-060-180	COLLAR		1
	6-18	★S8-059-080-230	BT RETURN LEVER		1
	6-19	★S8-059-080-100	BT CHANGE PLATE		1
	6-20	★S6-808-080-030	REEL SENSOR		1
	6-21	★S8-059-070-140	FLYWHEEL CAPSTAN		1
	6-22	S8-059-070-100	MAIN BELT		1
	6-23	★S8-059-073-030	FL ANGLE ASSY		1

EXPLODED VIEW – 7

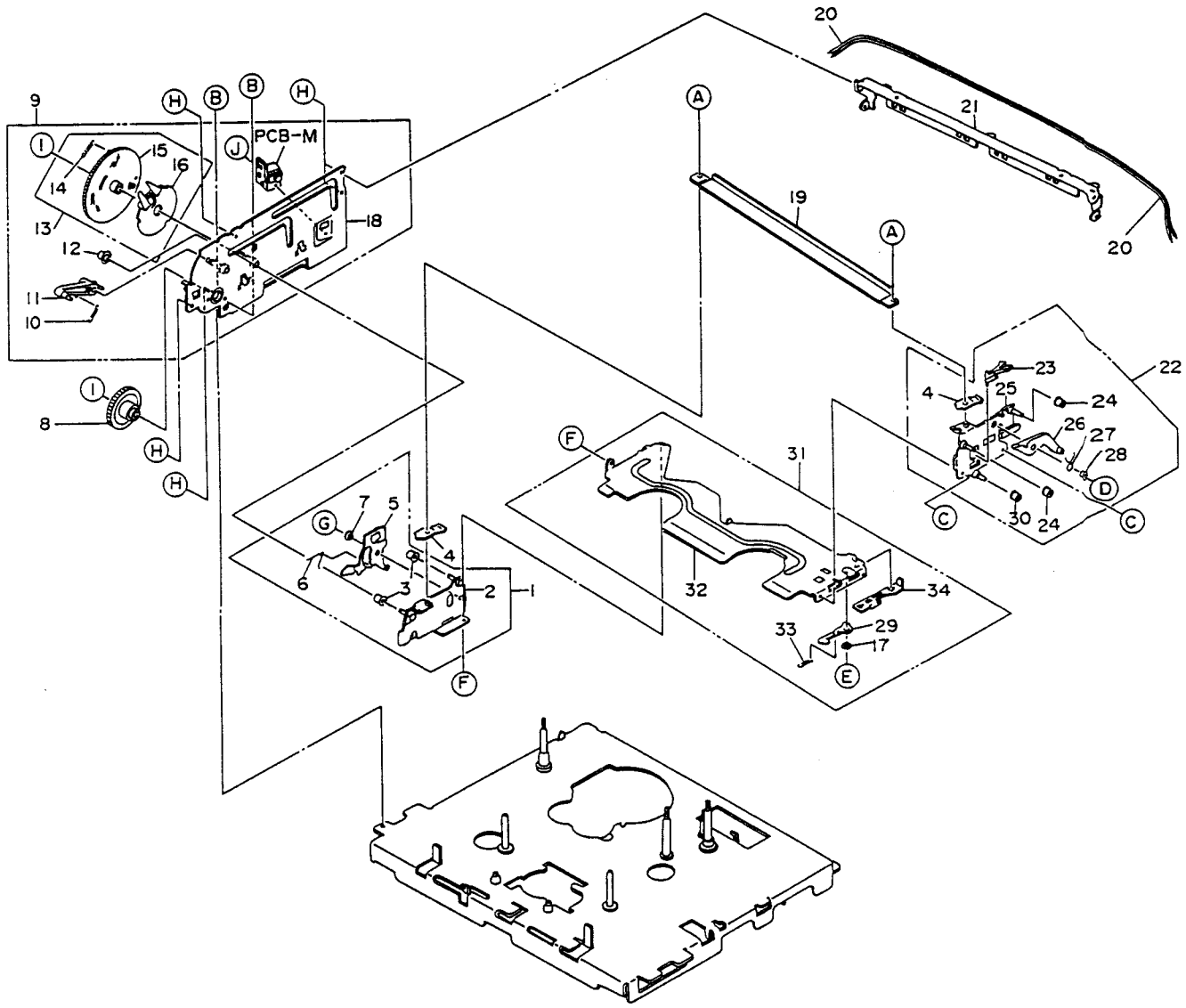
REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-096-000-000	TAMS SCREW 2.6×4	C	S9-743-000-000	PW CUT 1.6×3.8×0.3	E	S9-504-000-000	E RING S2.5
B	S9-078-000-000	TAMS SCREW 2×5	D	S9-192-000-000	C TAPPING SCREW 2.6×5			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
7-1～8-34		★S8-059-163-370	FRONT LOADING ASSY		1
	7-1	★S8-059-160-600	SYNCHRONIZE SHAFT		1
	7-2	★S8-059-163-090	FRONT ANGLE ASSY		1
	7-3	★S8-059-160-250	TAPE GUIDE R		1
	7-4	★S8-059-160-180	FRONT ANGLE		1
	7-5	★S8-059-160-240	TAPE GUIDE L		1
	7-6	★S8-059-160-660	UPPER PLATE		1
	7-7	★S8-059-160-170	SYNCHRONIZE GEAR A		1
	7-8	★S8-059-163-390	FRAME R ASSY		1
	7-9	★S8-000-220-260	OPEN LEVER GUIDE		1
	7-10	★S8-059-165-070	FRAME R SEMI ASSY		1
	7-11	★S8-000-220-240	GUIDE SLEEVE		1
	7-12	★S8-059-163-180	C LOAD BRACKET ASSY		1
	7-13	---	SENSOR P.C.B RM ASSY		1
	7-14	★S8-059-160-060	F WORM BEARING A		1
	7-15	★S8-059-165-060	C ROAD BRACKET SEMI ASSY		1
	7-16	★S8-059-160-340	IN SW LEVER		1
	7-17	★S8-059-160-330	S SW LEVER		1
	7-18	★S8-059-163-190	F LOADING CLUTCH ASSY		1
	7-19	★S8-059-163-210	WORM WHEEL ASSY		1
	7-20	★S8-059-160-450	FRICTION GEAR		1
	7-21	★S8-059-160-310	FRICTION SPRING		1
	7-22	★S8-059-160-360	WORM WHEEL		1
	7-23	★S8-059-163-120	LIFT GEAR R ASSY		1
	7-24	★S8-000-220-450	LP SPRING		1
	7-25	★S8-000-220-110	LIFT GEAR R		1
	7-26	★S8-000-220-110	LIFT ARM		1
	7-27	★S8-059-160-720	DAMPER MAT		

EXPLODED VIEW – 8

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
A	S9-833-000-000	SCREW 2.3×2	E	S9-968-000-000	SL SCREW 2.6×3	I	S9-504-000-000	E RING S2.5
B	S9-192-000-000	C TAPPING SCREW 2.6×4	F	S9-991-000-000	SCREW 2.3×2.5	J	S9-099-000-000	TAMS SCREW 2.6×7
C	S9-556-000-000	SCREW 2.6×3	G	S9-966-000-000	SL SCREW 2×2.5			
D	S9-967-000-000	SL SCREW 2×4	H	S9-096-000-000	TAMS SCREW 2.6×4			



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
7-1～8-34		★S8-059-163-370	FRONT LOADING ASSY		1
	8-1	★S8-059-163-090	SIDE PLATE L ASSY		1
	8-2	★S8-059-165-030	SIDE PLATE L SEMI ASSY		1
	8-3	★S8-000-220-750	GUIDE ROLLER		2
	8-4	★S8-059-160-280	CASSETTE PUSH PLATE		2
	8-5	★S8-000-220-660	C LOCK PLATE L		1
	8-6	★S8-059-160-300	LOCK PLATE SPRING L		1
	8-7	★S8-000-190-630	LOCK PLATE COLLAR		1
	8-8	★S8-059-160-170	SYNCHRONIZE GEAR A		1
	8-9	★S8-059-163-380	FRAME L ASSY		1
	8-10	★S8-059-160-680	LIFT LEVER SPRING		1
	8-11	★S8-059-160-670	LIFT LEVER		1
	8-12	★S8-000-220-240	GUIDE SLEEVE		1
	8-13	★S8-059-163-140	LIFT GEAR L ASSY		1
	8-14	★S8-000-220-450	LP SPRING		1
	8-15	★S8-000-220-140	LIFT GEAR L		1
	8-16	★S8-000-220-110	LIFT ARM		1
	8-17	★S8-059-060-180	COLLAR		1
	8-18	★S8-059-165-080	FRAME L SEMI ASSY		1
	8-19	★S8-000-220-650	TOP STAY		1
	8-20	---	END SENSOR WIRE		1
	8-21	★S8-059-160-090	REAR ANGLE		1
	8-22	★S8-059-163-080	SIDE PLATE R ASSY		1
	8-23	★S8-000-220-160	LOCK RELEASE LEVER		1
	8-24	★S8-000-220-750	GUIDE ROLLER		2
	8-25	★S8-059-165-020	SIDE PLATE R SEMI ASSY		1
	8-26	★S8-000-220-250	OPEN LEVER		1
	8-27	★S8-000-220-440	OPEN LEVER SPRING		1
	8-28	★S8-000-220-420	OPEN LEVER COLLAR		1
	8-29	★S8-000-220-120	C LOCK PLATE A		1
	8-30	★S8-000-220-230	GUIDE ROLLER		1
	8-31	★S8-059-163-060	CASSETTE HOLDER ASSY		1
	8-32	★S8-000-220-030	CASSETTE HOLDER		1
	8-33	★S8-059-160-290	LOCK SPRING		1
	8-34	★S8-000-220-130	SLIDE PLATE		1

■ ACCESSORIES／PACKAGE LIST

DESCRIPTIONで判断できない物は最終ページの "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	1	★82-JUA-904-010	IB, SH	※	1
	2	★82-JUA-914-019	IB, SHJNM	※	1
	3	★82-JUA-905-010	IB, KE	※	1
	4	★82-JUA-915-019	IB, KEJNM	※	1
	5	★82-JUA-906-010	IB, DH, DHKD1C	※	1
	6	★82-JUA-913-019	IB, SENM	※	1
	7	★82-JUA-608-010	UNIT, RC-TE212	※	1
	8	★87-034-593-010	CORD, RF PAL(SH, DH, DKKE, DHKD1C)		1
	9	★87-034-796-019	CORD, RF PAL S(SHJNM, SENM, DKKEJNM)		1
	10	★87-034-594-019	AC CORD SET, E		1

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
ECM	ECM
FLTR	FILTER
FUSE RES	RES, FUSE
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER
ｻｰｼﾞｻﾌﾟﾚｯｻ	SERGESUPPRESSOR
ｾﾗｺﾝ	CAP, CERA

912204,861377

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BAT, CONTACT ASSY	BATTERY CONTACT ASSY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
BTN, BBE	BUTTON, BBE
BTN, OPEN	BUTTON, OPEN
BTN, POWER	BUTTON, POWER
CAB	CABINET
CAB, FR	CABINET, FRONT
CAB, REAR	CABINET, REAR
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CUSH	CUSHION
DIR	DIRECTION
FR	FRONT
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HLDR, ARM	HOLDER, ARM
HLDR, ASSY	HOLDER, ASSY
HLDR, JACK	HOLDER, JACK
HLDR, SW	HOLDER, SWITCH
HLDR, TACT	HOLDER, TACT
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KNOB, SL	KNOB, SLIDE
KNOB, VOL REV	KNOB, VOLUME REV
LBL	LABEL
LBL, CAUTION	LABEL, CAUTION
LBL, SW	LABEL, SWITCH
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTORL
PANEL, FR	PANEL, FRONT
RBN	RIBBON
S-	SPECIAL
SH	SHEET
SH, CHAS	SHEET, CHASSIS
SH, DISP	SHEET, DISPLAY
SH, PCB	SHEET, PCB
SHLD-SH	SHILD-SHEET
SL	SLIDE
SP	SPRING
SP, SCREW BAT	SPECIAL SCREW BATTERY
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-P ASSY OPEN	P-SPRING OPEN ASSY
SPR-P, LOCK	P-SPRING, LOCK
SPR-PC-PUSH	P-SPRING, C-PUSH
SW	SWITCH
T-SP	T-SPRING
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL
ｼｬﾌﾄｰﾑ	ARM, SHAFT
ｼｬﾌﾄｶﾞｲﾄﾞ	GUIDE, SHAFT
ｽﾄﾗｯﾌﾟ	STRAP